

THE  
University of Arkansas  
Catalogue

1912-1913

Announcement for  
1913-1914

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CALVERT-MCBRIDE PRINTING CO.  
FORT SMITH, ARKANSAS

# CALENDAR

1913

## JULY

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## AUGUST

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31						

## SEPTEMBER

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## NOVEMBER

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1914

## JANUARY

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## FEBRUARY

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## MARCH

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## APRIL

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## JUNE

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# THE UNIVERSITY CALENDAR

1913-1914

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## 1913

May 9, Friday,	Medical College closes
May 29, Thursday,	Final Examinations begin in all Departments at Fayetteville
June 8, Sunday,	Baccalaureate Sermon
June 11, Wednesday,	Commencement Day
June 11, Wednesday evening,	Alumni Banquet
June 16, Monday,	Summer session begins
July 25, Friday,	Summer session closes
Sept. 15, Monday,	Medical College opens
Sept. 17, Wednesday,	Academic year begins at Fayetteville
Sept. 17-20,	Entrance examinations and registration
Sept. 22, Monday,	Instruction begins.
Nov. 27, 28,	Thanksgiving recess
Dec. 20-Jan. 4,	Christmas vacation

## 1914.

Jan. 24, Saturday,	Midyear examinations begin
Jan. 31, Saturday,	First semester closes
Feb. 2, Monday,	Second semester begins
May 15, Friday,	Medical College closes
May 28, Thursday,	Final examinations begin
June 7, Sunday,	Baccalaureate sermon
June 10, Wednesday,	Commencement day

## BOARD OF TRUSTEES

<i>The Governor of Arkansas</i> .....	<i>Ex-Officio</i>
J. M. FUTRELL.....	Little Rock
<i>The State Superintendent of Public Instruction</i> .....	<i>Ex-Officio</i>
GEORGE B. COOK.....	Little Rock
	<i>Term Expires</i>
A. B. BANKS, Fordyce.....	1917
J. D. HEAD, Texarkana.....	1919
H. L. PONDER, Walnut Ridge.....	1919
C. C. REID, Little Rock.....	1917
Dr. CHARLES RICHARDSON, Fayetteville.....	1915
T. A. TURNER, Jonesboro.....	1917
W. H. ASKEW, Magnolia.....	1919

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Chairman.....	Governor J. M. FUTRELL
Secretary.....	WILLIAM H. CRAVENS, Fayetteville
Treasurer.....	JACK WALKER, Fayetteville

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*Executive Committee*—Governor Futrell, Chairman; Messrs. Askew, Reid and Richardson.

*Finance Committee*—Mr. Banks, Chairman; Messrs. Head and Richardson.

*Teachers' Committee*—Mr. Cook, Chairman; Messrs. Askew and Head.

*Agricultural College*—Mr. Turner, Chairman; Messrs. Ponder and Reid.

*Buildings and Grounds*—Mr. Ponder, Chairman; Messrs. Richardson and Turner.

*Branch Normal*—Mr. Cook, Chairman; Messrs. Banks and Askew.

*Medical College*—Mr. Cook, Chairman; Messrs. Head and Ponder.

*Board of Control of the Agricultural Experiment Station*—The Committee on the College of Agriculture, the President of the University, the Director of the Station.

## OFFICERS OF ADMINISTRATION AND CORPS OF INSTRUCTORS

---

JOHN HUGH REYNOLDS, B. A. (Hendrix College, 1893), M. A.  
(University of Chicago, 1897) ..... 814 W. Maple Street  
*Acting President of the University*

### THE UNIVERSITY COUNCIL

JOHN HUGH REYNOLDS, M. A., *Acting President of the University*  
EDGAR FINLEY SHANNON, M. A., Ph. D., *Chairman of the College of Arts and Sciences, and Professor of English*  
JULIUS JAMES KNOCH, M. S., C. E., *Chairman of the College of Engineering and Professor of Civil Engineering*  
CHARLES FREDERICK ADAMS, B. S., M. A., M. D., *Dean of the College of Agriculture*  
JOHN CLINTON FUTRALL, M. A., *Professor of Ancient Languages*  
GEORGE WESLEY DROKE, M. A., *Professor of Mathematics*  
WILLIAM NATHAN GLADSON, M. S., E. E., Ph. D., *Professor of Electrical Engineering*  
CHARLES GEIGER CARROLL, M. A., Ph. D., *Professor of Chemistry, Secretary of the Council*  
MARTIN NELSON, B. S. A., M. S., *Professor of Agronomy*

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BURR WALTER TORREYSON, *Professor of Secondary Education*  
MARY AUSTIN, *Librarian*  
BIRTON NEILL WILSON, M. E., *Superintendent of Mechanic Arts*  
NOAH FIELDS DRAKE, Ph. D., *Curator of the Museum*

## UNIVERSITY OF ARKANSAS

## THE UNIVERSITY SENATE

- JOHN HUGH REYNOLDS, M. A., *Acting President of the University*  
 JOHN CLINTON FUTRALL, B. A. (University of Virginia, 1894),  
     M. A. (*ibid.*, 1894).....226 N. College Avenue  
     *Professor of Ancient Languages*
- GEORGE WESLEY DROKE, B. A. (University of Arkansas, 1880),  
     M. A. (*ibid.*, 1884).....103 Hill Street  
     *Professor of Mathematics*
- JULIUS JAMES KNOCH, B. S. (Grove City College, 1886), M. S.  
     (*ibid.*, 1887), C. E. (Cornell University, 1892)  
     *Professor of Civil Engineering* 402 N. College Avenue
- WILLIAM NATHAN GLADSON, B. M. E (Iowa State College,  
     1888), E. E. (*ibid.*, 1911), Ph. D. (McLeanorsville College,  
     1898).....820 W. Maple Street  
     *Professor of Electrical Engineering*
- FRANK WELBORN PICKEL, B. A. (Furman University, 1886), M.  
     S. (University of South Carolina, 1890), M. S. (University  
     of Chicago, 1899).....808 W. Maple Street  
     *Professor of Biology*
- BIRTON NEILL WILSON, B. S. M. E. (Georgia School of Tech-  
     nology, 1896), M. E. (University of Michigan, 1909),  
     241 N. College Avenue  
     *Professor of Mechanical Engineering*
- CHARLES HILLMAN BROUH, B. A. (Mississippi College, 1894),  
     M. A. (*ibid.*, 1899), LL. B. (University of Mississippi, 1902),  
     Ph. D. (Johns Hopkins University, 1898),  
     312 N. College Avenue  
     *Professor of Economics and Sociology, Secretary of the  
         Senate*
- CHARLES GEIGER CARROLL, B. A. (Southwestern University,  
     1895), M. A. (*ibid.*, 1896), Ph. D. (Johns Hopkins Univer-  
     sity, 1904).....732 W. Maple Street  
     *Professor of Chemistry*
- EDGAR FINLEY SHANNON, B. A. (Central University, 1893),  
     M. A. (Harvard University, 1910), Ph. D. (*ibid.*, 1912),  
     *Professor of English* 15 S. Duncan Street
- ANTONIO MARINONI, B. A. (Liceo of Desenzano, Italy, 1898),  
     M. A. (Yale University, 1904).....621 Ida Avenue  
     *Professor of Romance Languages*

University of Arkansas

THE UNIVERSITY SENATE

5

- ROBERT ROBSON DINWIDDIE, V. S. (Ontario Veterinary College, 1886), M. D. (College of Physicians and Surgeons, 1896),  
728 W. Maple Street  
*Professor of Pathology and Bacteriology*
- ERNEST WALKER, B. S. A. (Cornell University, 1897),  
*Professor of Horticulture* 524 Leverett Street
- GILES EMMET RIPLEY, B. S. (Purdue University, 1899), M. S. (ibid., 1902).....108 S. Duncan Street  
*Professor of Physics*
- MARTIN NELSON, B. S. A. (University of Wisconsin, 1905), M. S. (ibid., 1906).....415 Washington Avenue  
*Professor of Agronomy*
- JOSEPH LEE HEWITT, B. S. A. (University of Missouri, 1905),  
*Professor of Plant Pathology*
- JOHN FREDERICK STANFORD, M. D. V. (McKillip Veterinary College, 1906)  
*Professor of Veterinary Science*
- HUGO BEZDEK, B. S. (University of Chicago, 1906),  
Ozark Avenue  
*Professor of Physical Education*
- HENRY DOUGHTY TOVEY.....614 Ida Avenue  
*Professor of Music, Head of Department of Fine Arts*
- RAYMOND CHARLES THOMPSON, B. S. (Kansas State Agricultural College, 1908).....513 Highland Avenue  
*Professor of Agricultural Chemistry*
- WALTER MATTHEW BRISCOE, B. A. (Ouachita College, 1900),  
*Professor of German* 619 Ida Avenue
- JOHN MELVIN WILSON, B. S. A. (University of Arkansas, 1907),  
*Professor of Extension* 216 W. Dixon Street
- JOBELLE HOLCOMBE, B. A. (University of Arkansas, 1898), M. A. (Cornell University, 1906).....Carnall Hall  
*Dean of Women*
- GEORGE GROVER BECKER, B. S. (Cornell University, 1909)  
*Acting Professor of Entomology* 328 N. College Avenue
- NOBLE JAMES WILEY, B. S. (Alabama Polytechnic Institute, 1897), LL. B. (University of Alabama, 1899), First Lieutenant, Fifth Infantry, U. S. Army...322 Washington Avenue  
*Professor of Military Science and Tactics and Commandant*

## UNIVERSITY OF ARKANSAS

*DAVID YANCEY THOMAS, B. A. (Emory College, 1894), M. A. (Vanderbilt University, 1898), Ph. D. (Columbia University, 1903).....	Fairview Avenue <i>Professor of History and Political Science</i>
NOAH FIELDS DRAKE, C. E. (University of Arkansas, 1888), A. B. (Leland Stanford University, 1894), M. A. (ibid., 1895), Ph. D. (ibid, 1897).....	513 N. Highland Avenue <i>Professor of Geology and Mining</i>
ROSE BLAND, B. A. (University of Illinois, 1909)	
	<i>Professor of Education</i> 220 N. Block Street
JOHN RICHARD GRANT, B. A. (University of Arkansas, 1907), Ph. B. (Northern Illinois Normal College, 1909)	
	<i>Professor of Philosophy</i> 620 W. Maple Street
WALLACE CARL MURPHY B. A. (University of Arkansas, 1909)	
	<i>Acting Professor of History and Political Science</i>
ASSOCIATE, ASSISTANT AND ADJUNCT PROFESSORS	
ORSON ALLEN CARNAHAN, B. M. E. (University of Illinois, 1910).....	820 Douglas Street <i>Associate Professor of Mechanical Engineering</i>
NEIL CARTHERS, B. A. (University of Arkansas, 1905),	
	<i>Associate Professor of Economics</i> 212 N. College Avenue
BOLLING JAMES DUNN, B. A. (Bethel College, 1871), M. A. (ibid., 1874).....	116 S. Church Street <i>Associate Professor of Mathematics</i>
CLEMENT TYSON GOODE, B. A. (Wake Forest College, 1905), M. A. (ibid., 1906), M. A. (Harvard University, 1911),	
	<i>Associate Professor of English</i> 12 W. Dixon Street
ROLAND M. GOW, D. V. M. (Ohio State University, 1909)	
	<i>Assistant Professor of Veterinary Science</i>
*GUSTAVUS GARLAND GREEVER, B. A. (Central College, 1904), M. A. (Trinity College, 1905)	
	<i>Associate Professor of English</i>
ARTHUR McCACKEN HARDING, B. A. (University of Arkansas, 1904).....	537 Leverett Street <i>Associate Professor of Mathematics</i>
FRANK CLAYBOURNE HAWKINS, B. A. (University of Arkansas, 1909).....	746 Douglas Street <i>Adjunct Professor of Ancient Languages</i>

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\*Absent on leave.

## INSTRUCTORS

7

- |   |   |
|---|---|
| JACOB GARRETT KEMP, B. A. (University of Illinois, 1906), M. A.<br>(ibid., 1910), Ph. D. (ibid., 1912).....         | 820 W. Maple Street<br><i>Associate Professor of Physics</i>                |
| VIRGIL PROCTOR KNOTT, B. C. E. (University of Arkansas, 1904),  | 21 E. Spring Street<br><i>Associate Professor of Civil Engineering</i>      |
| WILLIAM CASPER LASSETTER, B. S. A. (University of Wisconsin,<br>1909).....  | 225 N. College Avenue<br><i>Assistant Professor of Agronomy</i>             |
| MAX CARL GUENTHER LENTZ.....  | 369 Gregg Street<br><i>Associate Professor of German</i>                    |
| KIRTLEY FLETCHER MATHER, B. S. (Dennison University, 1909),<br><i>Assistant Professor of Geology</i>                | 20 E. Spring Street   |
| HUGH ELLIS MORROW, B. S. A. (University of Arkansas, 1904),<br><i>Associate Professor of Chemistry</i>              | 516 Leverett Street   |
| LEE SEDWICK OLNEY, B. E. E. (University of Arkansas, 1905),<br><i>Associate Professor of Electrical Engineering</i> | R. F. D. No. 2  |
| CHARLES VLADIS RUZEK, B. S. A. (University of Wisconsin,<br>1909).....  | 412 E. Lafayette Avenue<br><i>Assistant Professor of Agronomy</i>           |
| WILLIAM BOYD STELZNER, B. E. E. (University of Arkansas,<br>1907), E. E. (ibid., 1911).....                         | 222 N. College Avenue<br><i>Adjunct Professor of Electrical Engineering</i> |
| CARL STEPHENSON, B. A. (DePauw University, 1907), M. A.<br>(ibid., 1908).....                                       | 510 N. College Avenue<br><i>Assistant Professor of History</i>              |

## INSTRUCTORS

- |                  |                                       |
|------------------|---------------------------------------|
| HELEN ADAMS..... | 318 E. Lafayette Avenue               |
|                  | <i>Instructor in Piano</i>            |
| RAMON ADAMS..... | Mountain Street                       |
|                  | <i>Instructor in Violin</i>           |
| FRANK BARR.....  | 219 N. Church Street                  |
|                  | <i>Instructor in Band Instruments</i> |

*MARY CUMMINGS BATEMAN <i>Instructor in Vocal Music</i>	
MABEL BELL.....	Spring Street <i>Instructor in Piano</i>
JOHN MALLORY BORDERS, B. S. A. (University of Arkansas, 1907).....	120 W. Spring Street <i>Instructor in Agronomy</i>
WILLIE VANDEVENTER CROCKETT.....	318 E. Lafayette Avenue <i>Instructor in Expression</i>
HERMAN WAKEMAN DEAN.....	314 W. Mountain Street <i>Instructor in Mechanical Engineering</i>
WILLIAM EDGAR DUCKWORTH.....	367 N. Gregg Street <i>Instructor in Mechanical Engineering</i>
JOHN WAINWRIGHT EVANS, B. A. (Princeton University, 1907), <i>Instructor in English</i>	Buchanan Street
ELIZABETH GALBRAITH.....	307 N. College Avenue <i>Instructor in Art</i>
MARY GARNETT HARGIS.....	288 Highland Avenue <i>Instructor in Romance Languages</i>
PHILIP CONRAD HUNTLY, B. C. E. (University of Arkansas, 1910).....	735 W. Dixon Street <i>Instructor in Civil Engineering</i>
ORIE ABBOT JENNISON.....	318 E. Lafayette Avenue <i>Instructor in Vocal Music</i>
EVELYN METZGER.....	307 N. College Avenue <i>Instructor in Art</i>
CLARA MILLER, Ph. B. (University of Chicago, 1906) <i>Instructor in Physical Education</i>	402 Arkansas Avenue
MABEL SANBORN .....	402 Arkansas Avenue <i>Instructor in Education</i>
KATE WITHERS SIMPSON.....	518 Leverett Street <i>Instructor in Education</i>
WILLARD CHANDLER THOMPSON, B. S. A. (University of Wisconsin, 1912).....	331 Highland Avenue <i>Instructor in Animal Husbandry</i>

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\*Absent on leave, 1913-1914.

## STANDING COMMITTEES OF THE SENATE

9

JOHN SIDNEY TURNER, B. A. (University of Cambridge, England, 1906).....	537 Leverett Street <i>Instructor in Mathematics</i>
HARTLEY EUGENE TRUAX, B. S. (Michigan Agricultural College, 1912).....	411 N. College Avenue <i>Instructor in Plant Pathology</i>
JUSTIN RANDOLPH TUCKER, B. S. A. (University of Arkansas, 1900) .....	158 Hill Street <i>Instructor in Agricultural Chemistry</i>
ROOSEVELT PRUYN WALKER, B. A. (Mercer University, 1905), M. A. (Yale University, 1908) .....	732 W. Maple Street <i>Instructor in English</i>
ROGER WILLIAMS, M. A. (Harvard University, 1909), <i>Instructor in English</i>	510 N. College Avenue

## OTHER OFFICERS

BRUCE WESLEY DICKSON, M. A. (University of Arkansas, 1912).....	312 N. College Avenue <i>Secretary of the Young Men's Christian Association</i>
MARGARET WILSON, B. A., (Park College, 1910)....	Carnall Hall <i>Secretary of the Young Women's Christian Association</i>
MRS. F. S. PARKE.....	Carnall Hall <i>Superintendent of the Women's Dormitory</i>
EUNICE BURNS.....	Hill Hall <i>Superintendent of the Men's Dormitories</i>

STANDING COMMITTEES OF THE UNIVERSITY  
SENATE

*Athletic Board*—Professor Futrell, Chairman; Professors Droke, Bezdek, Carroll, Goode.

*Committee on Accredited Schools*—Professor Thomas, Chairman; Professors Harding, Hewitt, Ripley, Shannon.

*Committee on Advisers*—Professor Briscoe, Chairman; Professors Grant, Hawkins, Olney, Mr. Williams.

*Committee on Attendance and Discipline*—Professor Shannon, Chairman; Professors Droke, Gladson, Nelson, Wiley.

*Committee on Catalogue*—Professor Nelson, Chairman; Professors Carroll, Hewitt, Knott, B. N. Wilson.

*Committee on Commencement*—Professor Brough, Chairman; Professors Gladson, Grant, Pickel, Tovey.

*Committee on Employment*—Professor Droke, Chairman; Professors Bland, Knoch, Morrow, E. Walker.

*Committee on Extension*—Dean Adams, Chairman; Professors Lentz, Marinoni, Stanford, Thomas.

*Committee on Honorary Degrees*—Professor Marinoni, Chairman; Professors Droke, Futrall, Hewitt, Pickel.

*Committee on Honors*—Professor Knoch, Chairman; Professors Hawkins, Stelzner, R. C. Thompson, Mr. Walker.

*Committee on the Library*—Professor Droke, Chairman; Professors Carroll, Stephenson, Mrs. Austin, Mr. Evans.

*Committee on Schedule*—Professor Futrall, Chairman; Professors Dunn, Gladson, Kemp, Nelson.

*Committee on Statistics*—Professor Ripley, Chairman; Professors Harding, Mather, R. C. Thompson, J. M. Wilson.

*Committee on Student Affairs*—Professor Gladson, Chairman; Professors Bland, Shannon, Miss Holcombe, Mr. Turner.

*Committee on Student Organizations*—Professor Carroll, Chairman; Professors Brough, Carothers, Futrall, Knoch.

## THE UNIVERSITY TOWN

The University of Arkansas is situated in Fayetteville, Washington County, in the northwestern part of the state, in the heart of the Ozark Mountains. The elevation of the town is in the neighborhood of 1,500 feet. The surroundings are of great natural beauty, and the climate of the region is excellent.

Fayetteville may be reached both from the north and from the south by the Texas branch of the St. Louis and San Francisco ("Frisco") Railroad. The Muskogee division communicates with the west.

The moral and religious conditions of the community are most favorable. There are fourteen churches in the town, representing nine denominations. The pastors of these churches actively interest themselves in the moral and spiritual welfare of the students.

By an act of the general assembly of the state, the liquor traffic has been barred from Fayetteville. Intoxicating liquors cannot be sold or given away within five miles of the University.

## SUMMER SESSION

The fourth Summer Session of the University will open on June 16, 1913, and close on July 25.

The courses offered in the Summer Session will be of grammar school, high school and collegiate grade. There will be a practice school for demonstration of methods in grammar school work.

The high school and college courses will be given by members of the corps of instructors of the University.

More detailed information regarding the Summer Session may be had from the Summer Session Bulletin, which will be sent on application.

## GENERAL INFORMATION

## HISTORY

The University of Arkansas owes its origin to an act of Congress, approved July 2, 1862, providing that public lands should be granted to the several states, to the amount of "30,000 acres for each senator and representative in Congress," from the sale of which there should be established a perpetual fund, "the interest of which shall be inviolably appropriated by each state, which may take and claim the benefit of this act, to the endowment, support, and maintenance of at least one college, where the leading object shall be, without excluding other scientific and classical studies and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the legislature of the states may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life." The act forbids the use of any portion of the aforesaid fund, or of the interest thereon, for the purchase, erection, or maintenance of any building or buildings. The states accepting the provisions of the act are required to provide for the construction and maintenance of the necessary buildings, and for the expenses of administration in carrying out the purposes of the act.

The general assembly of the state of Arkansas accepted the national law by passing an act, approved March 27, 1871, which provided for the location, organization and maintenance of the University of Arkansas.

Fayetteville, Washington County, was selected as the seat of the University and the institution opened on January 22, 1872.

The Experiment Station owes its origin to an act of Congress, of March 2, 1887 (The Hatch Act), under which act the University receives \$15,000 annually for the maintenance of the experiment station, "to aid in acquiring and diffusing among the people useful and practical information on subjects connected with agriculture, and to promote scientific investigation and experiment respecting the principles and applications of agricultural science." In 1906 the congress passed an act increasing this appropriation by the sum of \$5,000 the first year, and

providing for an additional increase of \$2,000 per annum, until such increased appropriation reaches \$15,000 annually.

Under an act of Congress, approved August 30, 1890, the University receives \$25,000 annually, "to be applied only to instruction in agriculture, the mechanic arts, the English language, and the various branches of mathematical, physical, natural and economic science, with special reference to their application to the industries of life."

On March 4, 1907, the Congress passed an act increasing this appropriation at the rate of \$5,000 per annum, until the total amount appropriated annually reaches \$50,000.

As to the present divisions of the University, the College of Agriculture, long known as the School of Agriculture or the Department of Agriculture, appears as a separate division of the University in 1905. Until 1912 the only other division at Fayetteville was the College of Liberal Arts, Sciences and Engineering. In 1912 this was subdivided into a College of Arts and Sciences and a College of Engineering. The Summer Session of the University was inaugurated in 1910.

## EQUIPMENT

### BUILDINGS AND GROUNDS

The land occupied by the University and its various departments comprises about 120 acres.

There are at present some fifteen buildings on the campus. The value of these, exclusive of equipment, approximates \$800,000.

The buildings are heated by steam, lighted by electricity, and supplied with water from the city waterworks.

*University Hall*, erected in 1872, is the "old main building" of the University. It is five stories in height, 214 feet in length and 124 feet in depth, occupying three sides of a quadrangle. The building contains some seventy rooms. In this building are the President's offices and in it is carried on the most of the work of the College of Arts and Sciences.

*Engineering Hall*, erected in 1904, lies a short distance to the south of University Hall. It is built of pressed brick and native

sandstone and limestone. This building is three stories high and is 150 by 58 feet. Here the most of the work of the College of Engineering is carried on.

*The Chemistry Building*, erected in 1905, is situated north of University Hall. It is two stories high and is 60 by 90 feet. This building houses the department of chemistry.

*Peabody Hall* is the most recently erected of the buildings and was made possible by a grant of \$40,000 from the George Peabody Fund. This building will accommodate the School of Education. The building has all modern improvements in heating, lighting and ventilation.

*College of Agriculture and Experiment Station Buildings.* The largest of these buildings, *Agricultural Hall*, is a brick structure two stories in height and 50 by 65 feet. It contains offices of the dean of the college, classrooms, and laboratories of the departments of agronomy and entomology. The *Dairy Building*, a stone building 45 by 75 feet and two stories in height, accommodates the department of animal husbandry and the work in dairying. Two smaller buildings accommodate the departments of pathology and bacteriology, horticulture, plant pathology, veterinary science, agricultural chemistry and agricultural extension. The equipment of this division of the University also includes several smaller buildings, e. g., a greenhouse, barns, implement and tool houses.

*The University Infirmary.* This is a one and one-half story brick building. The Infirmary has an open ward for men and one for women, a private ward for men and one for women, and a well isolated contagious ward.

*Dormitories.* There are three dormitories for men. *Buchanan Hall* is a three-story brick structure and contains some forty rooms. *Hill Hall*, named in honor of Lieutenant-general D. H. Hill, C. S. A., who served as president of the University from 1877 to 1884, was erected in 1901. It is a three-story brick structure, and besides a dining hall, kitchen, store-rooms, etc., contains about twenty rooms for students. *Gray Hall*, erected in 1905, was named in honor of Colonel O. C. Gray, C. S. A., sometime professor of mathematics in the University. The building is two stories in height, is built of brick, and is 176 feet in length by 92 feet in depth. It contains 68 student rooms and will accommodate 136 students.

The dormitory for young women, *Carnall Hall*, erected in 1905, was named in honor of Miss Ella Carnall, Ph. M., sometime associate professor of English and modern languages in the University. The building has three stories, and has a frontage of 190 feet and a depth of 106 feet. Besides parlors, a dining-room, a recreation room and practice rooms, it contains rooms sufficient to accommodate about a hundred students.

## LIBRARIES

The general library, which occupies the second floor of the north wing of University Hall, contains about 15,000 bound and 5,000 unbound volumes.

In connection with the College of Agriculture and the departments of Ancient Languages, English, German, Romance Languages, Mathematics, Biology, Chemistry, Geology, Physics, Civil, Electrical and Mechanical Engineering are special libraries.

The total number of books in all the University libraries approximates 25,000 bound and 10,000 unbound volumes.

## MUSEUM, ARMORY, ETC.

*The Museum* occupies a large portion of the fourth floor of University Hall. The contents of the museum have been collected with the view of facilitating instruction in geology and biology. That portion of the collection suitable for display is arranged in glass cases, while the working collection is in drawers.

*Relief Maps.* There have been placed in the museum the following relief maps: Geological relief maps of the State of Arkansas, the Colorado Canyon, Central Tennessee, and the United States; a convex relief map of the United States on a section of a globe sixteen feet in diameter; a relief map of Carmel Bay, California; Ice Springs craters, Utah; Yosemite Valley; Palestine; Mount Vesuvius; the State of California; San Francisco Peninsula; and a sectional geological relief map of the Leadville region, Colorado.

*The Mineral Collection.* The mineral collection contains

about three thousand specimens, representing the different mineral groups. Many of these specimens are displayed in cases.

*The Petrographic Collection.* This collection consists of a large number of specimens representing sedimentary, igneous, and metamorphic rocks. Besides, there is a large collection of building and other kinds of stone from different parts of the country.

*Paleontological.* There is a large collection of invertebrate fossils in the museum, representing principally the fauna of the different geological horizons in northern Arkansas.

*The Major Earle Collection.* Major F. R. Earle has deposited in the museum his private collection of minerals and fossils.

*The Zoological and Botanical Collection.* This collection consists of two hundred birds and mammals, representing eighty species; two hundred reptiles and amphibians, representing forty species; fifteen hundred fishes, representing three hundred and fifty species; one thousand insects and other invertebrates, representing two hundred species; several skeletons.

*The Armory* is a large well-lighted room, sixty by eighty feet, occupying the entire basement of the north wing of the University Hall. It is substantially fitted up with arm racks, compartments for equipments, and other conveniences.

*The Women's Gymnasium.* The women's gymnasium occupies a large room on the fourth floor of University Hall. It has been furnished as far as means were available with the equipment necessary for systematic physical training.

*The Athletic Field.* For the accommodation of the University football and baseball teams and spectators there is an excellent athletic field with a covered grandstand and bleachers. The baseball diamond has recently been rebuilt and greatly improved, the size of the athletic field has been almost doubled, and a first-class quarter-mile running track and football field are under construction. When the improvements now under way are completed the facilities afforded for outdoor exercises will be sufficient for the accommodation of a large number of students.

## ADMINISTRATION AND ORGANIZATION

## GOVERNMENT

The government of the University is vested primarily in a Board of Trustees, consisting of nine members. The Governor of the State and the Superintendent of Public Instruction are ex-officio members of the Board of Trustees; the other members are appointed by the Governor.

The administration of the University is vested in the President of the University, the University Council, the University Senate, the faculties of the several colleges, and the Deans and Chairmen of the colleges.

The President is the administrative head of the University. The University Council is composed of the President, the Deans and Chairmen of the separate colleges and five other members, appointed by the President. The Council is the central executive body of the University and is advisory to the President.

The University Senate is composed of the President of the University, the Deans or Chairmen of the college faculties, the Dean of Women, and all heads of departments and professors in the colleges. The Senate is the general legislative body of the University.

The faculties of the colleges of the University are composed of the members of the corps of instruction of these colleges. They have jurisdiction, subject to higher University authority, over all matters that concern exclusively their colleges.

The Deans and Chairmen of the colleges are responsible for the carrying out of all University regulations within their respective colleges. The Dean of Women acts as an adviser to women undergraduate students and is charged with the general care and conduct of these students.

## DIVISIONS OF THE UNIVERSITY

For the purposes of administration the University is divided into three separate but interdependent colleges.

The Colleges (at Fayetteville) are:

- I. The College of Arts and Sciences.
- II. The College of Engineering.
- III. The College of Agriculture.

*The College of Arts and Sciences* offers courses in—

- (1) The ancient classical languages
- (2) The Romance languages
- (3) The Germanic languages
- (4) The English language and literature
- (5) Mathematics and astronomy
- (6) Physics
- (7) Chemistry
- (8) Biology
- (9) Geology
- (10) History and political science
- (11) Economics and sociology
- (12) Philosophy
- (13) Education
- (14) Fine Arts (music, art, expression)

*The College of Engineering* offers courses in—

- (1) Civil engineering
- (2) Chemical engineering
- (3) Electrical engineering
- (4) Mechanical engineering
- (5) Mining engineering

*The College of Agriculture* offers courses in—

- (1) Agricultural chemistry
- (2) Agronomy
- (3) Animal Husbandry
- (4) Bacteriology
- (5) Entomology
- (6) Horticulture
- (7) Plant pathology
- (8) Veterinary science
- (9) Extension and agricultural education

*Military Science* is offered in all of the colleges

*Physical Education* is provided for women.

## ADMISSION TO THE COLLEGES

## ADMISSION WITHOUT CONDITIONS

For unconditional admission to any of the colleges, a student will be required to present fourteen units of high school or other secondary school work, so chosen as to include those prescribed by the particular college that he wishes to enter. (A unit is the equivalent of a preparatory subject of five periods of forty-five minutes each weekly throughout an academic year of nine months. In laboratory courses two laboratory periods are counted equal to one recitation period.)

Entrance credits may be secured by—

- (a) Certification from an accredited school (see page 26).
- (b) Examination (see page 25).
- (c) Transfer of credits from another university or college (see page 29).

## ADMISSION WITH CONDITIONS

Students who desire to enter the regular courses of the colleges may enter and be classified as conditioned students, provided their deficiencies do not exceed three units. Conditions may be removed by private study, either with or without a tutor, and examination; or by taking certain of the collegiate courses and offering them in satisfaction of the deficiencies. A freshman course of three hours a week for a year is equivalent to one unit.

## ENTRANCE REQUIREMENTS

Of the 14 units required, the following  $6\frac{1}{2}$  units are prescribed for admission to the freshman class in all of the colleges of the University:

## UNITS PRESCRIBED BY ALL THE COLLEGES

English .....	3	units
Algebra .....	$1\frac{1}{2}$	units
Geometry .....	1	unit
History .....	1	unit

Of the remaining  $7\frac{1}{2}$  units, the individual colleges prescribe:  
*College of Arts and Sciences:*

History .....  $\frac{1}{2}$  unit

For B. A. students only:

Foreign language ..... 3 units

(At least two units must be in one language, and all three units must be in Latin if the student proposes to study Latin in the college.)

For admission to the special course in music in the college, Algebra and Geometry,  $2\frac{1}{2}$  units, are not required.

*College of Engineering:*

After the year 1913-1914:

Geometry, solid and spherical, .....  $\frac{1}{2}$  unit

*College of Agriculture:*

Science (elective) ..... 1 unit

The remainder of the required 14 units must be made up from the list of elective units, given below.

Agriculture .....	1 unit
Botany .....	1 unit
Chemistry .....	1 unit
Civics .....	$\frac{1}{2}$ unit
French .....	1 to 3 units
Geometry, solid and spherical.....	$\frac{1}{2}$ unit
German .....	1 to 3 units
Greek .....	1 to 3 units
History .....	1 to 5 units
Latin .....	1 to 4 units
*Music .....	1 to 2 units
Manual training .....	1 unit
Mechanical drawing .....	1 unit
Pedagogy .....	$\frac{1}{2}$ unit
Physics .....	1 unit
Physical geography .....	$\frac{1}{2}$ to 1 unit
Physiology .....	$\frac{1}{2}$ to 1 unit
Psychology .....	$\frac{1}{2}$ unit
Zoology .....	1 unit

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\*Units in music will be accepted only for students entering the special course in music.

## DESCRIPTION OF SUBJECTS ACCEPTED FOR ADMISSION

The following descriptions will indicate the amount of work that should enable a student to pass entrance examinations in the subjects which may be offered in making up entrance credits.

**ALGEBRA.**—The study of Algebra through quadratics will give the equivalent of one unit. The study of Algebra beyond quadratics and including theory of quadratics, simultaneous quadratics, inequalities, ratio and proportion, variation, progressions (arithmetical, geometrical and harmonical), binomial theorem, and logarithms will be the equivalent of half a unit.

**BOTANY.**—An acquaintance with the general structure of plants and of their principal organs and their functions is required, together with an ability to classify the more common species. A laboratory note book covering two hours of laboratory work per week for one year must be presented.

**CHEMISTRY.**—The instruction must have included both recitations and laboratory work. Such courses as are given in the best high schools in one year will be equivalent to the one unit required. Laboratory notes bearing the teacher's endorsement must be presented for examination.

**CIVICS.**—The amount of study of the United States constitution, its history and interpretation, as required by any of the usual high school text-books on civil government will equal one-half unit.

**ENGLISH.—Composition and Rhetoric.**—Correct spelling, capitalization, punctuation, paragraphing, idiom and definition will be required, together with a knowledge of the elements of rhetoric.

**ENGLISH.—Literature.**—It is expected that each candidate will have read certain assigned literary masterpieces and will have given careful study to certain other works. The requirements in detail are:

I. *General Reading.*—(Ten units are to be selected, two from each group.) The candidate will not be expected to know these minutely, but to have freshly in mind their important parts. On examination, he will be required to write a paragraph or two on each of several topics drawn from them.

I. The Old Testament Books—*Genesis, Exodus, Joshua, Judges, Samuel, Kings, Daniel, Ruth and Esther; The Odyssey*

(Books I-V, XV-XVII may be omitted); *The Iliad* (Books XI, XIII-XV, XXI may be omitted); Virgil, *Aeneid*. For any unit of this group a unit from any other group may be substituted.

II. Shakspere's *Merchant of Venice*, *Midsummer Night's Dream*, *As You Like It*, *Twelfth Night*, *Henry Fifth*, *Julius Caesar*.

III. Defoe's *Robinson Crusoe* (Part I), Goldsmith's *Vicar of Wakefield*, Scott's *Ivanhoe* or *Quentin Durward*, Hawthorne's *House of Seven Gables*, Dickens' *David Copperfield* or *Tale of Two Cities*, Thackeray's *Henry Esmond*, Mrs. Gaskell's *Cranford*, George Eliot's *Silas Marner*, Stevenson's *Treasure Island*.

IV. Bunyan's *Pilgrim's Progress* (Part I), *The De Coverley Papers*, Franklin's *Autobiography* (condensed), Irving's *Sketch Book*, Macaulay's Essays on *Lord Clive* and *Warren Hastings*, Thackeray's *English Humorists*; *Selections from Lincoln*, including at least the two inaugurals, the Speeches in Independence Hall and at Gettysburg, the Last Public Address, and Letter to Horace Greeley, a brief Memoir or Estimate; Parkman's *Oregon Trail*, Thoreau's *Walden*, or Huxley's *Autobiography*, and *Selections from Lay Sermons*, including the addresses *On Improving Natural Knowledge*, *A Liberal Education*, and *A Piece of Chalk*; Stevenson's *Inland Voyage* and *Travels with a Donkey*.

V. Palgrave's *Golden Treasury* (First Series) Books II and III, with special attention to Dryden, Collins, Gray, Cowper, and Burns; Gray's *Elegy*, and Goldsmith's *Deserted Village*, Coleridge's *Ancient Mariner*, and Lowell's *The Vision of Sir Launfal*, Scott's *Lady of the Lake*, Byron's *Childe Harold* (Canto IV), and *Prisoner of Chillon*; Palgrave's *Golden Treasury* (First Series), Book IV, with especial attention to Wordsworth, Keats, and Shelley; Poe's *Raven*, Longfellow's *Miles Standish*, and Whittier's *Snow-Bound*, Macaulay's *Lays of Ancient Rome*, and Arnold's *Sohrab and Rustum*, Tennyson's *Gareth and Lynette*, *Launcelot and Elaine*, and *Passing of Arthur*; Browning's *Cavalier Tunes*, *Lost Leader*, *How They Brought the Good News*, *Home Thoughts from Abroad*, *Home Thoughts from the Sea*, *Incident of the French Camp*, *Herve' Riel*, *Pheidippides*, *My Last Duchess*, *Up at a Villa—Down in the City*.

2. *Careful Study*.—Certain books are prescribed for careful study. Candidates will be examined upon the subject matter, literary form, and logical structure of these, and, in addition,

may be required to answer questions involving the leading facts in those periods of English literary history to which the prescribed works belong. The list is:

Shakspere's *Macbeth*, Milton's *L'Allegro, Il Penseroso*, and *Comus*, Burke's *Speech on Conciliation with America*, or Washington's *Farewell Address* and Webster's *First Bunker Hill Oration*; Macaulay's *Life of Johnson*, or Carlyle's *Essay on Burns*.

In connection with the reading and study of the prescribed books, parallel or subsidiary reading should be encouraged, and a considerable amount of English poetry should be committed to memory.

Though there is no formal examination in grammar or rhetoric, the ability to write good English will be considered of the utmost importance. Serious defectiveness in point of spelling, grammar, idiom, punctuation, clear and accurate expression, or division into paragraphs, will be taken as primary evidence of the candidate's unfitness. The candidate may present, as an additional evidence of preparation, an exercise book properly certified by his instructor, containing compositions or other written work.

**FRENCH.**—*First Year's Work*.—The candidate should have a knowledge of elementary grammar and irregular verbs, must be able to read easy French prose at sight, and must have read at least 200 pages of simple prose.

*Second and Third Year's Work*.—The candidate will be expected to be able to translate standard French prose and poetry at sight and to turn easy English prose into French. The candidate should have read 700 pages of such authors as Daudet, Loti, Sandeau, Dumas, Augier, Labiche and Martin, and Hugo.

**GEOMETRY.**—*Plane Geometry*.—All of plane geometry is required for admission to the freshman class. A note book containing the solution of at least one hundred and fifty original exercises should be submitted for inspection.

*Solid and Spherical Geometry*.—Applications to the solutions of original exercises are emphasized.

**GERMAN.**—*First Year's Work*.—The student should know the rudiments of grammar and possess an ability to read easy prose at sight and to translate simple English sentences into German. He should have read 200 pages of easy prose.

*Second and Third Year's Work.*—The student should be able to read modern German prose and poetry at sight and to translate easy English narrative into German. He should have read 450 pages of the works of Riehl, Heyse, Freytag, Baumbach, Heine, Goethe and Schiller, and 30 pages of lyrics and ballads.

**GREEK.**—The requirements can be met by not less than three years of competent instruction in the preparatory school. The ground covered should be the same as that in Greek 1 and 2 of the collegiate courses (see page 53), or the equivalent.

**HISTORY.**—*Ancient History.*—The completion of a standard text-book, with emphasis on the history of Greece and Rome, will meet the requirement.

*General History.*—Two years' work should be given to general history, the first year to ancient, and the second to modern history.

*Modern History.*—One year's work, using one of the standard high school text-books, will suffice.

*English History—American History.*—The requirements are as for modern history, *mutatis mutandis*.

**LATIN.**—The minimum requirements in Latin are the reading of four books of Caesar and of four orations of Cicero, or the equivalent in other prose; a thorough knowledge of the forms and of the fundamental constructions of verb and noun; and the ability to translate into idiomatic Latin such sentences as those found in Bennett's *Latin Writer*. Students offering Virgil should have had four years of competent instruction in Latin, and should have read not less than six books of the *Aeneid*. For this a credit of one additional unit will be allowed.

**MANUAL TRAINING AND MECHANICAL DRAWING.**—The time required in each of these subjects is the equivalent of five double periods each week for one year, or five single periods for two years. The two subjects should be pursued in parallel courses.

**MUSIC.**—A unit in music is equivalent to two lessons a week, of at least thirty minutes each, together with three hours of practice, five days a week, throughout a year.

**PHYSICS.**—The completion of any one of the standard high school text-books on the subject, together with at least two hours of laboratory work for one year, will meet the requirement. A certified laboratory note-book must be presented for examination.

PHYSICAL GEOGRAPHY.—The work of preparation should be the equivalent of a one-half or a whole year's work.

PHYSIOLOGY.—The requirements are equivalent to those for physical geography, *mutatis mutandis*.

PEDAGOGY AND PSYCHOLOGY.—A course based on Dinsmore's *Teaching a District School* or Kern's *Among Country Schools* will be the equivalent of half a unit.

ZOOLOGY.—The requirements are equivalent to those for physics, *mutatis mutandis*. A certified laboratory note-book, covering two hours of laboratory work per week for one year, must be presented for examination.

#### *Entrance Examinations*

Entrance examinations may be taken at the University, or, by special arrangement, at other places.

For 1913 the order of examinations at the University is as follows:

Geometry .....	Wednesday, Sept. 17,	1	p. m. to	3	p. m.
Algebra .....	Thursday, Sept. 18,	1	p. m. to	4	p. m.
Latin .....	Friday, Sept. 19,	1	p. m. to	4	p. m.
English Composition and					

Literature .....	Saturday, Sept. 20,	9	a. m. to	12	m.
United States History	Saturday, Sept. 20,	1	p. m. to	2:30	p. m.
General History .....	Saturday, Sept. 20,	2:30	p. m. to	4	p. m.

The time of examinations in other subjects will be announced at the opening of the University.

Students living at a distance from the University may obtain special entrance examinations, if application is made in due time before the beginning of the sessions. These examinations will be conducted by a principal of any school, or by a county examiner, under conditions that will be indicated when the application is made.

## ADMISSION BY CERTIFICATE

Graduates from accredited schools of Class A may be admitted without conditions to the freshman classes in the colleges of the University without examination, provided, in every case, certificates from the principal of the school attended have been presented. Such certificates must contain specific statements of the kind and extent of work done. *Diplomas of graduation will not be accepted in lieu of certificates.* All certificates are passed upon by the Committee on Accredited Schools of the University Senate.

Blank forms for certificates will be sent to the principals of the various accredited schools shortly before the close of the school year. Principals are requested to fill out certificates for each graduate of the year and forward them to the University as soon as may be convenient.

Graduates from accredited schools of Class B may enter the University by certificate, as in the case of graduates from schools of Class A. However, such graduates will enter with conditions, that is, will lack two or three of the fourteen units required. They will be admitted to the freshman classes of the college and permitted to make good their deficiencies while in attendance at the University (see page 19).

Graduates from schools of Class C cannot enter the University by certificate. They must do a third year of high school work, or may by private study prepare to stand the entrance examinations.

Prospective university students in high schools should take notice that the policy of the University is to discourage them from coming to the University before graduation from the high school.

*The University will not receive, without examination, a student under twenty years of age from any high school within the state unless he is a graduate from the high school, or comes with the recommendation of the superintendent, principal or board of his high school.*

## LIST OF ACCREDITED SCHOOLS

## CLASS A

*Schools accredited in work amounting to 14 units or more.*

Amity High School	Hot Springs High School
Arkansas Cumberland College	Jonesboro High School
Arkansas State Normal	Junction City High School
Arkadelphia High School	Little Rock College
Ashdown High School	Little Rock High School
Atkins High School	Lonoke High School
Augusta High School	Magnolia High School
Bentonville High School	McAlester (Okla.) High School
Berryville High School	Marianna High School
Blytheville High School	Mena High School
Booneville High School	Monticello High School
Cabot High School	Mountain Home Academy
Carlisle High School	Nashville High School
Camden High School	Paragould High School
Clarendon High School	Paris (Texas) High School
Clarksville High School	Pine Bluff High School
Clary Training School	Portland High School
Conway High School	Prescott High School
Crescent College Academy	Rogers High School
Crossett High School	Rogers Academy
Dardanelle High School	Russellville High School
De Queen High School	Searcy High School
Dermott High School	Siloam Springs High School
El Dorado High School	Springdale High School
England High School	Stamps High School
Eureka Springs High School	Stephens High School
Fayetteville High School	Stuttgart High School
Fordyce High School	Stuttgart Training School
Fort Smith High School	Texarkana High School
Gentry High School	Tulsa (Okla.) High School
Guthrie (Okla.) High School	Van Buren High School
Green Forest High School	Warren High School
Hamburg High School	Warren Training School
Hazen High School	Waldron High School
Helena High School	Western Military Academy
Hope High School	

## CLASS B

*Schools accredited in work amounting to 11-13 units.*

Batesville High School	Hesperian High School,
Bellefonte High School	Lockesburg
Benton High School	Lake Village High School
Bigelow High School	Malvern High School
Brinkley High School	Mammoth Springs High
Cale High School	School
Charleston High School	Marvell High School
Choctaw High School	Morrillton High School
Clinton High School	Okolona High School
Corning High School	Pocahontas
Danville High School	Prairie Grove High School
Foreman High School	Sulphur Rock High School
Forrest City High School	Sutton High School
Gravette High School	Tuckerman High School
Greenwood High School	Trenton High School
Hartford High School	Washington High School
Harrison High School	Wynne High School
Havana High School	Yellville High School
Heber High School	

## CLASS C

*Schools accredited in less than 11 units*

Alma High School	Huntington High School
Argenta High School	Jacksonville High School
Batesville High School	Jasper High School
Beebe High School	Leslie High School
Belleville High School	Lewisville High School
Cleveland High School	London High School
Cotter High School	Luxora High School
Des Arc High School	McCrory High School
DeVall's Bluff High School	Marshall High School
DeWitt High School	Magazine High School
Evening Shade High School	Montrose High School
Gurdon High School	Newport High School
Hampton High School	Osceola High School
Harrisburg High School	Ouachita-Maynard Academy

Ozark High School	Rector High School
Paris High School	Rison High School
Pea Ridge Masonic College	Waldo High School
Piggott High School	Walnut Ridge High School
Plumerville High School	West Fork High School
Quirman High School	Wilmar High School
Ratcliff High School	

SCHOOLS ACCREDITED FOR ENTRANCE INTO THE COLLEGE OF  
AGRICULTURE

First District Agricultural High School .....	Jonesboro
Second District Agricultural High School .....	Russellville
Third District Agricultural High School .....	Magnolia
Fourth District Agricultural High School .....	Monticello

ADMISSION BY TRANSFER OF ENTRANCE CREDITS FROM OTHER  
COLLEGES OR UNIVERSITIES

A person who has been admitted to another college or university of good standing will be admitted to this University upon presenting a certificate of honorable dismissal from the institution from which he comes and an official statement of the subjects upon which he was admitted to such institution, provided it appears that the subjects are those required for admission to this University, or are substantially equivalent to the requirements of this University.

ADMISSION TO ADVANCED STANDING

After registration, an applicant may secure advanced standing either by examination or by transfer of credits from another college or university.

1. *By Examination.* Advanced standing may be secured only by examination, unless the applicant is from another university or college or from an accredited high school of Class A. After the school year 1913-1914, credits toward advanced standing will be given to high school graduates only upon examination.

2. *By Transfer of Credits.* Credits of another college or university and for the year 1913 only, from an accredited high school may be accepted for advanced standing. Applicants for such credits must present an official statement of the work done in the institutions from which they come, and, except in cases

of students from high schools, must present certificates of honorable dismissal.

#### ADMISSION AS SPECIAL STUDENTS

Persons over eighteen years of age, not candidates for a degree, may be admitted as special students on terms prescribed by the individual colleges. In every case they must secure the recommendation of the professor whose work they wish to take and the approval of the dean or chairman of the college concerned. The requirements of the different colleges are:

*College of Arts and Sciences.* Special students must be at least 21 years of age, except that persons at least 18 years of age will be permitted to enroll in the Department of Fine Arts.

*College of Engineering.* Special students must be at least 18 years of age.

*College of Agriculture.* Special students must be at least 18 years of age.

Special students are subject to the same regulations as regular undergraduate students. They may become candidates for graduation upon complying with all the necessary University regulations.

No person will be permitted to abuse the privilege of registering as a special student to secure merely nominal membership in the University, whether for social purposes or to engage in athletics, or for any other reason.

No person will be permitted to register as a special student for more than one collegiate year, without the permission of the college faculty or faculties concerned.

## FEES AND EXPENSES

## FEES

*All University fees must be paid in advance.* The regular fees of the year must be paid before the student is entitled to enter classes.

Fees are paid to the Secretary of the University.

The matriculation fee is.....	\$14.00
Student Activities fee.....	6.00
Diploma fee, payable before graduation.....	5.00
Dormitory fee, for students lodging in a dormitory, per term .....	5.00

*Breakage fee.* Students working in the laboratories are required to make a deposit to pay for materials and apparatus used and for any breakage or damage. In no course does the deposit exceed \$10. The balance of the deposit is refunded, after making the necessary deductions.

*Fees in the Department of Fine Arts*

Music, Piano, Voice, Violin, per term.....	\$22.50
Per month .....	6.00
Harmony, in class.....	5.00
History of music, in class.....	5.00
Organ practice, per hour.....	.20
Piano practice, one hour daily, per term.....	2.50
Each additional hour daily, per term.....	1.25
Recital fee, admitting to at least two artist's recitals.....	1.50
Diploma fee, for completion of the special course in music .....	5.00
<i>Expression.</i> Private lessons, per term.....	22.50
Private lessons, per month.....	6.00

<i>Art.</i> Private lessons, per term.....	22.50
Private lessons, per month.....	6.00
Tuition in the Public School Drawing Course (Course 10) .....	2.00

## EXPENSES

The following estimates, based upon data secured from students recently in attendance, will give some idea of the cost of attending the University for a year:

Clothes, including uniform.....	\$ 20.00	\$ 40.00	\$ 65.00
Board, laundry, etc. ....	135.00	180.00	225.00
Books, instruments, etc. ....	10.00	15.00	20.00
Incidentals .....	15.00	30.00	35.00
Matriculation and student activities fee..	20.00	20.00	20.00
.....	.....	.....	.....
	\$200.00	\$285.00	\$365.00

## BOARD AND ROOMS

*Dormitories*

The three men's dormitories provide accommodations for about 250 students.

For rooms in the dormitories, unfurnished, a charge of \$5 per term for each occupant is made. Board, light, heat, and laundry work are provided at cost.

The woman's dormitory, Carnall Hall, provides accommodations for about 100 students. The rooms in Carnall Hall are furnished. Board, heat and light are provided at about \$15 per month for each student.

*Boarding and Lodging in Private Homes*

Boarding places must be selected from a list of such places as have been approved by the University authorities. Once chosen, boarding places cannot be changed except by consent of the President, in the case of men, or of the Dean of Women, in the case of women.

## DISCIPLINE

The enforcement of discipline is in the hands of the Senate Committee on Discipline and Attendance, the University Council and the chairmen and deans of the colleges.

Students are required to be diligent in the pursual of their studies and regular in attendance upon classes. The University will not permit students to remain at the University who fail to meet its requirements.

At the beginning of the year a handbook containing the rules and regulations of the University is placed in the hands of each student. Students will be held responsible for the observance of the regulations therein contained.

Students must matriculate and classify if possible during the first three days of the session. Failure to do so may be cause for discipline.

## UNIVERSITY ORGANIZATIONS AND EXERCISES

## CONVOCATION

At three o'clock on Wednesday afternoon of each week of the session the faculty and students assemble in the University auditorium to engage in Convocation exercises. At these meetings helpful addresses are delivered and general University affairs are discussed. Occasional musical and other numbers add variety to the programs.

## THE CHRISTIAN ASSOCIATIONS

During the year 1912-1913, 156 men and women were enrolled in the Young Men's and Young Women's Christian Associations. Each association employs a general secretary who gives full time to the work.

Religious meetings for men are held on Sunday afternoons in the Association Hall and on Wednesday evenings. Religious services for women are held on Sundays, and on Wednesdays and Fridays; a series of special evangelistic meetings is held once each year. Courses in systematic Bible study and in modern missions are offered. Within the past year some 100 men and 50 women were enrolled in these courses.

A most helpful feature of the work of the associations is in their interest in new students at the opening of the college year. Students are assisted in securing desirable rooms and boarding places. A bureau of information is conducted for the benefit of all students who need assistance.

Each year the associations issue a Student's Handbook, which gives information about Fayetteville, the University, and the various college organizations and activities.

The Christian Associations stand for spiritual, mental, and physical development. Their mission is to befriend and help those who need friends and help, to apply Christian principles to college life, to train for aggressive religious work—in short, to prepare men and women to go out from the University to become religious leaders, as well as business, social and intellectual leaders.

The University authorities are in hearty sympathy with the organizations and do everything in their power to aid in their work.

## ORGANIZATIONS AUXILIARY TO COURSES OF STUDY

*The Cercle Français* is open to students enrolled in the courses in French. Its object is to encourage the use of spoken French and to promote the study of French life and literature. It meets twice a month throughout the school year.

*The Chemistry Journal Club* is composed of students taking the courses in chemistry. At its weekly meetings instructors and advanced students take part in the discussion of articles in the current chemical journals.

*The American Institute of Electrical Engineers, University of Arkansas Branch*, meets regularly on the first and third Tuesdays of each month of the school year, for the presentation of original papers and for discussion of the regular Institute transactions, of which advance copies are received. All students interested in electrical engineering are eligible to membership.

*The American Society of Mechanical Engineers, University of Arkansas Student Section*, meets regularly on the second and fourth Mondays of the month, during the school year. The meetings are devoted to the presentation of original papers and discussion of papers selected from those regularly presented before the American Society of Mechanical Engineers, of which advance copies are received. Occasionally a lecture by some prominent engineer takes the place of the regular program.

*The Agricultural Society* meets weekly to discuss topics of practical and theoretical interest to students of agriculture and current topics of general interest. Occasionally lectures by experts in agriculture take the place of the regular programs.

*The John C. Branner Geological Club* meets on the second Monday of each month. Its programs consist of papers and occasional lectures on geological topics. Membership in the club is open to students in the courses in geology.

## LITERARY SOCIETIES

The *Garland*, *Periclean*, *Lee*, and *Demosthenean* societies for men, the *Sapphic* society for women, and the *Mathetian* society for men and women, meet weekly, on Fridays, during the school year.

## THE GLEE CLUB

*The University of Arkansas Glee Club* is a student musical

organization, membership in which is open to men students and is determined by competition.

#### STUDENT PUBLICATIONS

There are three publications issued by the student body: *The University Weekly*, devoted to current events in all departments of the University; *The Arkansan*, a literary magazine, appearing monthly; and the *Cardinal*, which is published annually, and gives a history of the college year. The *Weekly* is edited by a board selected from the entire student body; the *Cardinal* is published by the members of the junior class.

### DEGREES—GRADUATION

#### DEGREES AND CERTIFICATES

The following degrees are conferred by the departments of the University at Fayetteville:

In the *College of Arts and Sciences*, Bachelor of Arts (B. A.), Bachelor of Science in Chemistry (B. S. C.), Master of Arts (M. A.), and Master of Science (M. S.).

In the *College of Engineering*, Bachelor of Chemical Engineering (B. Ch. E.), Bachelor of Civil Engineering (B. C. E.), Bachelor of Electrical Engineering (B. E. E.), Bachelor of Mechanical Engineering (B. M. E.), and Bachelor of Mining Engineering (B. Mi. E.), Chemical Engineer (Ch. E.), Civil Engineer (C. E.), Electrical Engineer (E. E.), and Mechanical Engineer (M. E.).

In the *College of Agriculture*, Bachelor of Science in Agriculture (B. S. A.) and Master of Science (M. S.).

A bachelor's degree is conferred on any student who satisfactorily completes the course of study prescribed for the degree by the various colleges, doing either the whole or the last year of his work in residence at the University.

If the student is in residence at the University for one year only, that year's work must be taken in the college from which the degree is expected. The final year of residence work must not be less than the equivalent of sixteen hours for one year.

A candidate for a bachelor's degree must pass in the studies prescribed in his chosen course and must conform to the rules governing the election of studies.

The requirements include three hours of military science and

drill for men and three hours of physical training, music, art, or elocution for women. Men excused from the military requirement and women who do not take courses in physical training, etc., must offer instead an equivalent number of hours in other subjects.

The requirements for the various degrees and the prescribed courses are given in detail in the announcements of the various colleges.

#### REQUIREMENTS FOR THE MASTER'S DEGREES

Candidates for the degree of Master of Arts or Master of Science must hold a bachelor's degree of this University or from some other institution of recognized standing. They are required to do at least one year's work in residence and to present an acceptable thesis.

Candidates are required to select a major subject and one or two minors. At least half of the work must be done in the major subject, and the total amount of work required will be the equivalent of sixteen hours per week for the year.

Candidates for the masters' degrees must not merely acquire a certain amount of knowledge by rote; they must show some development of the power of independent work and original research. The thesis will represent the results of research.

#### REQUIREMENTS FOR THE GRADUATE DEGREES IN ENGINEERING

For candidates doing work in residence at the University, the requirements are similar to those for the masters' degrees, save that the amount of work demanded is not less than fifteen hours per week as counted in undergraduate work.

These degrees will also be given to graduates of this University in civil, mechanical, electrical, and chemical engineering who have been in successful practice of their profession for three years, and who present a statement of their work, together with a satisfactory thesis on an approved subject.

#### CERTIFICATES

Certificates are conferred on students who complete the following courses:

In the *College of Arts and Sciences*, the Normal Course, the Special Course in Music, the Academic Course in Art;

In the *College of Engineering*, the Course in Mechanic Arts.

## HONORS, SCHOLARSHIPS, PRIZES

## SCHOLARSHIPS

*University Scholarships.* By authority of the Board of Trustees fifteen Graduate and Undergraduate Scholarships have been established. Graduates of this University or of other universities are eligible for appointment to Graduate Scholarships. Students of this University of senior standing may be appointed to Undergraduate Scholarships. Holders of scholarships are expected to render a certain amount of service in the departments in which they hold scholarships. Graduate Scholars will receive \$150, Undergraduate Scholars, \$125 per year. Appointments to scholarships will be made by the University Council.

*Women's Clubs Scholarships.* The Federation of Women's Clubs of Arkansas offers two scholarships, one for men and one for women. Appointment to these scholarships is determined by a competitive examination conducted by the University.

*Daughters of the Confederacy Scholarship.* The Daughters of the Confederacy of the state have provided a scholarship.

*Elk's Scholarship.* The B. P. O. of Elks has also provided a scholarship.

Further details regarding any of the foregoing scholarships may be had by applying to the President of the University.

## UNIVERSITY HONORS

By a system of honors the University gives official recognition of attainments in scholarship. The honors are Distinctions, Departmental Honors, General Honors and Honors at Graduation.

*Distinctions.* Any student who ranks E in the work of a collegiate course, and not less than F in any of his studies, is eligible to a *Distinction* in the course. Distinctions may be conferred on not more than ten per cent of the students enrolled in a course.

*General Honors.* Any student who is enrolled for at least fifteen hours of collegiate work and who receives Distinctions in the majority of his courses and ranks not less than G in any of his courses, or, any student who ranks E in all of his courses, will receive *General Honors*.

*Departmental Honors.* Any student who completes not less than nine hours of work in a department with a rank of E, and who ranks not less than G in the remainder of his courses, will be eligible for *Departmental Honors*. Departmental Honors in any particular department may not be conferred on more than ten per cent of those eligible.

*Honors at Graduation.* Any student who receives General Honors in both his junior and senior years and who successfully passes an oral examination in two subjects selected by himself, will receive *Honors at Graduation*.

Honors are published at Commencement and Graduation Honors are indicated on diplomas.

#### PRIZES

*The William Jennings Bryan Prize.* Mr. William Jennings Bryan gave to the University two hundred and fifty dollars, from the interest of which sum a prize is offered annually for the best essay on some topic relating to the problems of government. The contest is open to students who have junior or senior standing, and to special students, with certain restrictions. Further details of the conditions for competition may be had from the professor of economics and sociology.

*The Johnson Prize.* Dr. W. S. Johnson offers a valuable loving cup to be competed for in an oratorical contest open to the members of the literary societies.

*The Brough Debating Medal.* Dr. Charles Hillman Brough, of the department of economics and sociology, offers a medal of the value of \$20, or \$20 in money, as a prize for excellence in debate, to be contested for by two representatives from each of the literary societies of the University. Two debates are held during the session; one formal, in which the speeches are prepared, and valued at sixty per cent; the other informal, in which the speeches are impromptu, and valued at forty per cent. These debates are designed to train students of the University in the art of forensic speaking, and to promote a friendly rivalry among the literary societies.

*The Periclean Society Prize.* Miss Naomi Josephine Williams offers a prize for the best oration written and delivered by a member of the Periclean Society.

*The Wingo Medal.* Mr. Otis T. Wingo, of De Queen, Arkan-

sas, offers a medal of the value of ten dollars for the best declamation. All men students are eligible to compete for this medal.

*The Tillman Medal.* Mr. John N. Tillman offers a gold medal for the best essay by any member of the Sapphic Society.

*The A. B. Banks Insurance Prise.* Mr. A. B. Banks, President of the A. B. Banks Insurance Company, of Fordyce, Arkansas, offers a prize of \$50 to the students enrolled in the department of economics who write the best essays on some fire insurance topic. By special arrangement with Mr. Banks, this prize is divided between the writers of the first, second, and third best essays, in the ratio of \$25, \$15, and \$10, respectively.

*The Reichardt Good Roads Prize.* Mr. W. F. Reichardt, of Little Rock, Arkansas, offers a prize of \$50 to the student of the department of Civil Engineering who writes the best essay on some topic relating to roads or pavements.

# THE COLLEGE OF ARTS AND SCIENCES

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## FACULTY

JOHN HUGH REYNOLDS, M. A., *Acting President of the University*

EDGAR FINLEY SHANNON, Ph. D., *Chairman of the Faculty of Arts and Sciences*

JOHN CLINTON FUTRALL, M. A., *Professor of Ancient Languages*  
GEORGE WESLEY DROKE, M. A., *Professor of Mathematics and Astronomy*

FRANK WELBORN PICKEL, M. S., *Professor of Biology*

CHARLES HILLMAN BROUH, Ph. D., *Professor of Economics and Sociology*

CHARLES GEIGER CARROLL, Ph. D., *Professor of Chemistry*

EDGAR FINLEY SHANNON, Ph. D., *Professor of English*

ANTONIO MARINONI, M. A., *Professor of Romance Languages*

GILES EMMET RIPLEY, M. S., *Professor of Physics*

WALTER MATTHEW BRISCOE, B. A., *Professor of German*

NOAH FIELDS DRAKE, Ph. D., *Professor of Geology and Mining*

HENRY DOUGHTY TOVEY, *Professor of Music*

\*DAVID YANCEY THOMAS, Ph. D., *Professor of History and Political Science*

ROSE BLAND, B. A., *Professor of Education*

JOHN RICHARD GRANT, B. A., *Professor of Philosophy*

WALLACE CARL MURPHY, B. A., *Acting Professor of History and Political Science*

MAX CARL GUENTHER LENTZ, *Associate Professor of German*

BOLLING JAMES DUNN M. A., *Associate Professor of Mathematics*

HUGH ELLIS MORROW, B. S. A., *Associate Professor of Chemistry*

ARTHUR McCracken HARDING, B. A., *Associate Professor of Mathematics*

NEIL CARTHERS, B. A., *Associate Professor of Economics and Sociology*

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\* On leave, 1914.

\*GUSTAVUS GARLAND GREEVER, M. A., *Associate Professor of English*

CLEMENT TYSON GOODE, M. A., *Associate Professor of English*

KIRTLEY FLETCHER MATHER, B. S., *Assistant Professor of Geology*

JACOB GARRET KEMP, Ph. D., *Associate Professor of Physics*

CARL STEPHENSON, M. A., *Assistant Professor of History and Political Science*

FRANK CLAYBOURNE HAWKINS, B. A., *Adjunct Professor of Ancient Languages*

ROGER WILLIAMS, M. A., *Instructor in English, Secretary of the Faculty*

JOHN SIDNEY TURNER, B. A., *Instructor in Mathematics*

ROOSEVELT PRUYN WALKER, M. A., *Instructor in English*

JOHN WAINWRIGHT EVANS, B. A., *Instructor in English*

MABEL SANBORN, *Instructor in Education*

KATE WITHERS SIMPSON, *Instructor in Education*

†MARY CUMMINGS BATEMAN, *Instructor in Vocal Music*

ORIE ABBOT JENNISON, *Acting Instructor in Vocal Music*

WILLIE VANDEVENTER CROCKETT, *Instructor in Expression*

ELIZABETH GALBRAITH, *Instructor in Art*

EVELYN METZGER, *Instructor in Art*

CLARA MILLER, Ph. B., *Instructor in Physical Education*

MABEL BELL, *Instructor in Piano*

HELEN ADAMS, *Instructor in Piano*

RAMON ADAMS, *Instructor in Violin*

Students who complete the undergraduate courses of the College of Liberal Arts receive the degree of Bachelor of Arts (B. A.) or Bachelor of Science in Chemistry (B. S. C.). The B. A. course is designed to give a liberal education. Much of the course is elective; it will therefore form a proper basis for graduate professional studies in law, in medicine or in preparation for teaching. The B. S. C. course is designed to give training in science, particularly in chemistry.

In addition to the courses that lead to a degree there are certain courses, the completion of which is attested by a certificate from the University, e. g., the normal course and the course in music.

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\* On leave

†On leave, 1912-1913

## ADMISSION

The admission requirements for the college are given in the general statement of the entrance requirements of the University, pp. 19, 20.

## REQUIREMENTS FOR GRADUATION WITH THE B. A. DEGREE

The following are the requirements for the B. A. degree:

1. *General.* The candidate must meet the University requirements as to residence and registration, and must secure credit in approved courses in the college amounting to 67 hours. (An hour is one class period per week for one year, or two to three hours of laboratory work per week for one year.)

2. *Prescribed subjects.* Specifically prescribed are: English 1 and English 2, 6 hours for all candidates, and military science, 3 hours, for men, or physical education, music, art, or expression, 3 hours, for women.

3. *Group requirements.* The subjects in the college are grouped as follows:

1. Ancient Languages (Greek, Latin), English, German, Romance Languages (French, Spanish, Italian).

2. Mathematics, Astronomy, Biology, Chemistry, Geology, Physics.

3. Economics, Education, History, Political Science, Philosophy, Sociology.

Group 4 includes courses offered in other colleges of the University, a restricted election of which is permitted.

4. Civil, Chemical, Electrical, Mechanical, and Mining Engineering, Agricultural Chemistry, Agronomy, Animal Husbandry, Entomology, Horticulture, Veterinary Science.

In the election of studies the following rules must be observed:

1. Not more than 20 hours may be counted in any one subject, and not more than 40 hours in any group.

2. At the close of the candidate's freshman year, he must select a major subject. In general, the candidate will be expected to offer not less than 12 hours in his major subject. The exact major requirements differ with different departments; statements of the requirements are given in connection with the an-

nouncements of the various departments or may be had from the heads of departments.

3. Major subjects may be selected only from Groups 1, 2, and 3.

4. All candidates are required to do 6 hours of work in some foreign language, and must have presented or must complete two years of entrance work in this language, except that candidates whose majors are in scientific subjects are permitted to present 12 hours of work in modern languages, preferably distributed equally between two languages. Of the 12 hours work in foreign languages required of scientific students, at least 9 hours must be done at the University.

5. Not more than 9 hours may be offered from Group 4.

#### ARRANGEMENT OF COURSES

##### *First Year*

###### *Subjects Prescribed for Freshmen*

The following subjects must be taken during the freshman year: English 1, 3 hours; Foreign language, 3 or 4 hours; Military Science, 1 hour, and Mathematics 3, 3 hours (by men students); and electives to total 17 hours.

###### *Subjects Open to Freshmen*

The following subjects are unrestrictedly open to freshmen: English 1, French 1, German 1, Greek 1 and 7, Italian 1, Latin A, 1 and 1c, Spanish 1, History 1a, 1b, 11a and 11b, Mathematics 1a, 1b, 2a, 2b, and 3, Biology 1, 2, and 5, Chemistry 1, Geology 1, and Physics 1. Under special conditions a limited number of freshmen will be permitted to elect Economics 1.

##### *Second Year.*

The following subjects must be taken during the second year: English 2, 3 hours; Military Science, 1 hour; Foreign Language, 3 hours of the language chosen in the freshman year; from Group 2, 3 hours; from Group 3, 3 hours; and electives to bring the total to 17 hours.

##### *Third and Fourth Years.*

In the third year the only subject required is Military Science, 1 hour. The remaining 16 hours are wholly elective, subject to

the approval of the student's major professor and the chairman of the college. In the fourth year, 16 hours of wholly elective work are required, to be chosen with the approval of the major professor and of the chairman of the college.

REQUIREMENTS FOR GRADUATION WITH THE B. S. C. DEGREE  
COURSE LEADING TO THE DEGREE OF B. S. IN CHEMISTRY

*First Year*

	Hours per week
Mathematics 1a, 1b, 2a, 2b.....	6
Physics 1 .....	3
Chemistry 1 and Chemistry 5.....	4
English 1.....	3
German 1.....	3
Military Science.....	1

*Second Year*

Chemistry 2.....	3
Chemistry 6.....	3-5
Physics 2 and 3.....	4
French 1.....	3
Drawing .....	1
Elective .....	3-5
Military Science.....	1

The electives are to be selected from the following: Chemistry 3 and 31; English 2, 13; German 2; Mathematics 4a, 4b; Biology 1; Geology 1a, 1b; Economics 1; History 1a, 1b; Shop-work.

*Third Year*

Chemistry 3 or 4.....	2-3
Chemistry 7 .....	3-5
Chemistry 11 .....	2
Chemistry 15 (second semester).....	2
Elective .....	8-11
Military Science.....	1

The electives are to be selected from the following: Chemistry 31 or 41; Mathematics 7 or 8; Geology 5a, 5b; Biology 4; German 10; Physics 7b.

*Fourth Year*

Chemistry 8 .....	3-5
Chemistry 14b .....	2
Chemistry 15 .....	2
Chemistry 18 (Journal Meeting) .....	
Thesis (Chemistry 17) .....	
Elective .....	9-11

The electives are to be selected from the following:

Chemistry 4, 41, 9, 10, 12a, 16; Physics 4, 9; Biology 7, 8; Geology 5b, 6a; Mathematics 11a; English 4a, 4b; History 4a, 4b; Economics 2.

Electives other than those indicated may also be offered, subject to the approval of the student's adviser and the chairman of the college.

REQUIREMENTS FOR THE DEGREES OF MASTER OF ARTS (M. A.) AND  
MASTER OF SCIENCES (M. S.)

The graduate degrees of Master of Arts and Master of Science may be conferred on students who have spent at least one year in graduate studies and who have submitted an acceptable thesis.

Applicants for graduate degrees in the College of Arts and Science should apply for information to the chairman of the Senate Committee on Graduate Studies.

SPECIAL COURSES OFFERED BY THE DEPARTMENT OF EDUCATION

The Department of Education offers special courses the completion of which is attested by a certificate from the University (the certificate of Licentiate of Instruction). The certificate is a license to teach in accordance with a state law which provides:

"That the diplomas from the teachers' training department of the University of Arkansas shall be equivalent to a teacher's professional license, which shall entitle the holder to teach in any public school in the state of Arkansas for a period of six years from and after the date of issue, and at the expiration of the said diploma may be converted into a life certificate, provided the character of the work done by the holder thereof and his or her moral character meet with the approval of the State Superintendent of Public Instruction of the State of Arkansas."

The certificate is also granted to those who do major work

in the Department of Education and complete not less than 11 hours of work in the department, together with other work in the College of Arts and Sciences.

The admission requirements for the courses are given in the statement of the entrance requirements of the University, pp. 19, 20.

The requirements for the courses are as follows:

NORMAL COURSE			
<i>With Science</i>	<i>With Latin</i>		
FIRST YEAR			
Hours Per Week	Hours Per Week	Hours Per Week	
English 1 .....	3	English 1 .....	3
History 1a and 1b.....	3	Latin 1 and 1c .....	4
Education 1a and 2b.....	3	Education 1a and 2b .....	3
Education 3a and 3b.....	2	Education 3a and 3b .....	2
Science (elective) .....	3	Mathematics 1a and 1b.....	4
Elective .....	3	Physical Education .....	1
Physical Education .....	1		
SECOND YEAR			
Per Week Hours	Hours Per Week	Hours Per Week	
English 2 .....	3	English 2 .....	3
Education 5a and 5b or 6b.....	2	Education 5a and 5b or 6b.....	2
Education 4 .....	4	Education 4.....	4
Agriculture .....	2	Agriculture .....	2
Elective .....	5	Science (elective) .....	3
Drawing, manual training or reading .....	1	Elective .....	2
		Drawing, manual training or reading .....	1

All work done in the foregoing course may be counted as part of the 67 hours required for the B. A. degree.

#### ANNOUNCEMENT OF THE SCHOOL OF EDUCATION

The Board of Trustees of the University have authorized the establishment of a separate division of the University to be known as the School of Education.

The newly erected Peabody Building will accommodate part of the work of the School. The School of Education will have a separate faculty consisting of a dean, and instructors in other departments and colleges of the University represented in the curriculum of the School.

In connection with the School of Education courses in Do-

mestic Science will be offered, as provided for by a recent legislative enactment.

The work of the School of Education will lead to the degrees of Bachelor of Arts (in Education) and Master of Arts (in Education) and to the Normal (L. I.) certificate.

The School of Education will offer theoretical and practical training for prospective elementary school principals, high school teachers and principals, and superintendents of schools.

The work of the School of Education will be inaugurated at the beginning of the next session of the University.

#### SPECIAL COURSES OFFERED IN THE DEPARTMENT OF FINE ARTS

The Department of Fine Arts offers special courses, the completion of which is attested by a diploma or a certificate from the University.

The purpose of these courses is to give opportunity to persons who do not desire to become candidates for degrees, but wish to do special work in music, art, and expression, together with a judicious amount of work of a cultural nature, in preparation for teaching or as a basis for further study.

The admission requirements for these courses are given in the statement of the entrance requirements of the University, pp. 19, 20.

#### SPECIAL COURSE WITH MUSIC (PIANO, ORGAN, VOICE, VIOLIN), LEADING TO A DIPLOMA

The requirements for a diploma in music from the Department of Fine Arts include the following work in other departments of the College of Arts and Sciences:

English 1 and 2, six hours; Modern Language, six hours; History 1a and 1b or Economics 1, three hours.

In music, definitely required are: Harmony 1 and Harmony 2, and History of Music 1.

For the requirements in Piano, Violin, Voice, etc., no definite number of hours can be stated; the applicant must show the attainment of sufficient knowledge, technique and ability. In general this will demand from four to six years of work. Finally, in addition to the study of the major instrument, the candidate must spend one year in the study of some other instrument.

Students entering the foregoing course are required to present 14 entrance units, two of which may be in music.

SPECIAL COURSE WITH ART, LEADING TO A CERTIFICATE

FIRST YEAR

English, three hours; Foreign Language, three or four hours; Biology, three hours; History, three hours; Art, four hours.

SECOND YEAR

English, three hours; Foreign Language, three hours; Economics, three hours; Biology, three hours; Art, including History of Art, five hours.

THIRD YEAR

English, three hours; Psychology, three hours; Economics, three hours; Art and History of Art, six hours; Elective, three hours.

FOURTH YEAR

English, three hours; Ethics, three hours; Art and History of Art, six hours; Elective, five hours.

SPECIAL COURSE WITH EXPRESSION, LEADING TO A CERTIFICATE

FIRST YEAR

English, three hours; Foreign Language, three hours; Economics or History, three hours; Science, three hours; Expression, five hours; Physical Education, one hour.

SECOND YEAR

English, three hours; Foreign Language, three hours; History or Economics, three hours; Science, three hours; Expression, five hours; Physical Education, one hour.

THIRD YEAR

English, three hours; Psychology, three hours; Foreign Language, three hours; Science, three hours; Expression, five hours; Physical Education, one hour.

FOURTH YEAR

Ethics, three hours; Foreign Language, three hours; Expression, five hours; Physical Education, one hour; Elective, six hours.

## LABORATORIES AND EQUIPMENT

*Biological Laboratory.* The biological laboratory is located on the third floor of University Hall, and has accommodation for about forty students. The laboratory is furnished with work-tables, a sink, and the necessary gas fixtures for incubators, sterilizers, etc.; also an aquarium for keeping aquatic animals and plants for observation and study. The equipment in apparatus consists of compound microscopes, dissecting microscopes, microtomes, and such other apparatus and chemicals as are needed for the practical work in biology. There is a collection of insects, and also apparatus for collecting, drying, preserving and mounting insects. The laboratory has a number of skeletons of different animals, and models and charts for teaching plant and animal anatomy.

*Chemical Laboratories.* On the first floor of the Chemistry Building are laboratories for quantitative and qualitative analysis, organic chemistry, physical chemistry; a balance room; and a library. On the second floor is a large lecture room and a general laboratory for first year students. In the basement are store rooms and the laboratory for assaying. The various laboratories are provided with work-tables, sinks, hoods, water, and gas. The department is provided with apparatus sufficient for the present needs.

*Physical Laboratory.* The physical laboratory is located in Engineering Hall. It is equipped with modern instruments in quantity sufficient for the laboratory work of the courses in physics.

*Geological Laboratories.* The department of geology occupies nearly all of the fourth floor of University Hall. The department is equipped with maps, relief maps, minerals and rock specimens; and with aneroid barometers, compasses, hand-levels, pedometers, etc., for field work. There is also a well equipped laboratory for determinative mineralogy.

*Equipment of the Department of Military Science and Tactics.* The equipment of the department consists of six hundred Krag-Jorgensen rifles; eighteen gallery rifles, 1903 Springfield model; five hundred sets of leather infantry equipments; signal flags; non-commissioned officers' swords; and ammunition furnished by the National Government. National colors, cadet officers' swords, and a set of band instruments have been purchased by the University.

## DESCRIPTION OF COURSES OFFERED IN THE COLLEGE OF ARTS AND SCIENCES

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Courses designated by a numeral followed by the letter *a* are given during the first semester.

Courses designated by a numeral followed by the letter *b* are given during the second semester.

Courses designated by numeral alone are continued through both semesters. Credit in one semester's work of such courses will not be granted.

Courses designated by a numeral followed by the letter *c* are language composition courses.

Courses designated by a numeral followed by the letter *l* are laboratory courses.

The numeral in parentheses after the name of a course indicates the number of hours of credit given for completion of the course.

### ANCIENT LANGUAGES

PROFESSOR FUTRALL, ADJUNCT PROFESSOR HAWKINS.

#### LATIN

For students entering with only two units in Latin (see page 24 of this catalogue) course A is provided. Latin 1 is intended for those who offer for entrance three units, but may be taken by well-prepared students who offer only two units.

Students presenting four units of Latin for entrance will be admitted to Latin 2. All students taking this course are advised to take Latin 2c at the same time.

*Latin 1c should be taken by all students in course A or course 1. No credit for any college course in Latin will be given until the student has satisfactorily completed course 1c, or has presented evidence that he has completed an equivalent course in the preparatory school or elsewhere.*

Students who desire recommendations as teachers of Latin in high schools must have credit for Latin 2, 2c, and not less than three hours of more advanced work.

UNIVERSITY OF ARKANSAS  
LIBRARY

A. CICERO'S ORATIONS AND LETTERS (3)—Six orations and selections from the letters; a review of the forms; drill in the syntax of the noun and verb. *No credit will be given for this course until course 1c, or the equivalent, has been passed.* M. W. F. 1.

ADJUNCT PROFESSOR HAWKINS.

I. VERGIL'S *ÆNEID* (3)—Six books of Vergil's *Æneid*. Due attention will be paid to forms and syntax, but the chief aim in this course will be to enable the student to arrive at an appreciation of the poem as literature. The dactylic hexameter will be studied and read. *No credit will be given for this course until course 1c, or the equivalent, has been passed.* M. W. F. 2.

ADJUNCT PROFESSOR HAWKINS.

1c. PROSE COMPOSITION (1)—An elementary course. Required of all students in Latin A or Latin 1 who have not passed its equivalent. Bennett's *Latin Composition* will be completed. T. and Th. 2.

ADJUNCT PROFESSOR HAWKINS.

2. CICERO AND LIVY (3)—Cicero's *De Amicitia* and *De Senectute*; Livy, Burton's *Selections*; sight reading; Roman private life. *Prerequisite:* Latin 1c and either Latin A or 1. M. W. F. 3.

PROFESSOR FUTRALL.

2c. PROSE COMPOSITION (1)—Nutting's *Supplementary Latin Composition*. *Prerequisite:* Latin 1c. Th. 3.

PROFESSOR FUTRALL.

3. ROMAN PUBLIC AND PRIVATE LIFE (2)—Selections from Cicero, Pliny, Juvenal, and Martial. *Prerequisite:* Latin 2.

PROFESSOR FUTRALL.

3c. PROSE COMPOSITION (1)—The translation of connected passages of idiomatic English into idiomatic Latin. *Prerequisite:* Latin 2 and 2c. W. 4.

PROFESSOR FUTRALL.

4. HORACE AND TACITUS (3)—Horace, *Odes* and *Epodes*; Tacitus, *Annals*; parallel and sight reading; the metres of Horace. *Prerequisite:* Latin 2 and 2c. T. Th. 4; W. 2.

5. ROMAN POETRY (3)—The reading of selected portions of Roman poets from Plautus to Juvenal. An attempt will be made to secure for the student a good general view of the whole field of Roman poetry within the limits stated. *Prerequisite:* Latin 2c, and 3 or 4.

PROFESSOR FUTRALL.

#### GREEK

Courses 1 and 2 are designed to give students who do not pre-

sent entrance credits in Greek an opportunity to begin the study of the language. Those having an entrance credit of three units will be admitted to Greek 3.

- I. ELEMENTARY COURSE (4)—White's *Beginner's Greek Book*, with selections from Xenophon's *Anabasis*. A thorough mastery of the forms and constructions given in this book is required. M. T. W. Th. 4 . ADJUNCT PROFESSOR HAWKINS.

2. XENOPHON AND LYSIAS (4)—This course is intended to familiarize the student with all the ordinary Attic forms and constructions; frequent exercises in oral and written translation of English into Greek, based upon the text read, are given; there is some practice in sight reading. *Prerequisite:* Greek I. M. W. Th. F. 6.

3. HOMER AND PLATO (3)—Systematic study of the grammar; prose composition; Greek literature; sight reading. *Prerequisite:* Greek 2. M. 4, Th. F. 2. PROFESSOR FUTRALL.

4. GREEK HISTORIANS (2)—Selections from Herodotus and Thucydides. Prerequisite: Greek 3. PROFESSOR FUTRALL.

5. ADVANCED PROSE COMPOSITION (1)—Weekly written exercises. Prerequisite: Greek 3. PROFESSOR FUTRALL.

6. THE ATTIC DRAMA (3)—Readings from Æschylus, Euripides, Sophocles, and Aristophanes. *Prerequisite:* Greek 3.

7. NEW TESTAMENT GREEK (3)—A course for beginners. This course is designed to secure for those who have never studied Greek a reading knowledge of the New Testament. No further attention will be paid to forms and syntax than is essential. The second term will be devoted to reading in the New Testament, and the work of this term may be taken by any student who is prepared for it, and credit will be given.

PROFESSOR FUTRALL.

BIOLOGY

PROFESSOR PICKEL

The courses in biology have been arranged to meet the needs of three classes of students; those who desire to become acquainted with the fundamental principles of plant and animal life; those who contemplate the study of medicine; and those who wish to go more thoroughly into the study of biological science.

to obtain the technical training necessary for subsequent investigation or for teaching.

Students who make biology their major are required to take courses 1 or 2, 3, 4, 5, 6, 7 or 8 and 9.

1. GENERAL BIOLOGY (3)—This course serves as an introduction into the whole field of biological science. Types of plants and animals will be dissected and studied in the laboratory, and the essential truths of biology emphasized. The first semester is devoted to the study of animals, the second to the study of plants. One recitation and laboratory, four hours per week throughout the year. Tu. Th. 6 and 7. F. 6. PROFESSOR PICKEL.

2. BOTANY (3)—In this course special attention is paid to the morphology, physiology, and ecology of plants, but due attention is given in the second semester to the systematic classification of plants, and each student is required to collect and write a technical description of a certain number of plants. The geological history of plants and the origin of cultivated plants will be briefly considered. Field work, when practicable, will form an important feature of the course. Recitation and laboratory work six hours per week throughout the year. M. W. 6 and 7; F. 7. PROFESSOR PICKEL.

3. ADVANCED BOTANY (3)—A lecture and laboratory course on the morphology, physiology, and the diseases and injuries of plants. One lecture and four hours' laboratory work per week throughout the year. *Prerequisite:* Botany 2. Tu. Th. 5 and 6; F. 4. PROFESSOR PICKEL.

4. BACTERIOLOGY (4)—An introduction to the subject and instruction in laboratory technique—the preparation of nutrient media, the characteristics of bacteria, the kind and effects, isolating and keeping pure cultures, microscopical preparations, the study of bacteria found in soil, in water, and in air; study of pathogenic forms and their relation to disease. One lecture and six hours' laboratory work per week throughout the year. *Prerequisite:* Chemistry 1, Biology 1. M. 1, Tu. W. F. 2 and 3. PROFESSOR PICKEL.

5. GENERAL ZOOLOGY (3)—A general course in invertebrate and vertebrate morphology. Attention will be given to the fundamental facts of zoological science and the laws of development, heredity, variation, correlation, etc. In connection with the lab-

oratory work in the course, instruction will be given to such students as desire to learn methods of preparing bird skins and mammal skins for laboratory and museum specimens. Field work, when practicable, will form an important feature of the course. One recitation and four hours' laboratory work per week throughout the year. M. F. 3 and 4; W. 5.

PROFESSOR PICKEL.

6. COMPARATIVE ANATOMY OF VERTEBRATES (3)—Recitations and demonstrations dealing with the comparative anatomy of acrania, cyclostomes, sharks, fishes, amphibians, reptiles, birds and mammals. Laboratory work on selected types of the different groups. One recitation and four hours' laboratory work per week throughout the year. *Prerequisite:* Biology 1, or Biology 5. M. 2, W. F. 1 and 2.

PROFESSOR PICKEL.

7. ANIMAL HISTOLOGY AND EMBRYOLOGY (5)—This course is offered to students intending to study medicine, but is open to any student who has completed Biology 1. It consists of instruction in histological and embryological methods of technique to acquaint the student with the principles of histology and embryology. Two lectures and six hours' laboratory work per week throughout the year. *Prerequisite:* Biology 1 or 2. Tu. Th. 1, W. F. 2, 3, 4.

PROFESSOR PICKEL.

8. PHYSIOLOGY (4)—This course is intended for students who desire a general knowledge of physiology and personal hygiene of the human body. It is especially adapted for teachers and also recommended for students of sociology and psychology. Two recitations and four hours' laboratory per week throughout the year. *Prerequisite:* Elementary Physiology. M. W. 2 and 3, and Tu. Th. 1.

PROFESSOR PICKEL.

9. PHYSIOLOGICAL CHEMISTRY (4)—The physiology of foods, digestion, and nutrition; the blood circulation and respiratory mechanism; the excretions, and analysis of urine; functions of brain and spinal cord; physiology of nerve and muscle. Two lectures and four hours' laboratory work a week throughout the year. *Prerequisite:* Chemistry 1 and Biology 8. M. and F. 2, Tu. 2 and 3.

PROFESSOR PICKEL.

10. NATURE STUDY (1)—A special course in nature study, its aim, methods, etc., and systematic science teaching will be offered to students who expect to teach. One lecture per week throughout the year. *Prerequisite:* Biology 1. PROFESSOR PICKEL.

## CHEMISTRY

PROFESSOR CARROLL, ASSOCIATE PROFESSOR MORROW.

The department of chemistry offers a special course leading to the degree of B. S. in Chemistry (see pp. 45, 46 for an outline of this course) which may be pursued in preparation for work in analytical chemistry, or as a basis for graduate study in chemistry or medicine.

For a major in chemistry not less than 15 hours of work in chemistry must be done. The character of the work will depend upon the student's purpose. For those who are preparing to teach chemistry in the high school, Chemistry 1, 2, 3, 3a, 6, 11, 111 are required and courses 12a and 15 are recommended. The student will also be expected to pursue certain courses in physics, mathematics and education. For students who are preparing for the study of medicine, Chemistry 1, 2, 3, 5a, 6, and 11 are prescribed and other courses are recommended, together with work in biology, physics, and modern languages. For students who are preparing for graduate work in chemistry, Chemistry 1, 2, 3, 3l, 4, 4l, 5, 6, 11, 111, and 15 are prescribed. In addition the student will be expected to do much work in physics, mathematics and modern languages.

*Prerequisites:* Elementary (preparatory) physics, or its equivalent is prerequisite for admission to Chemistry 1. Chemistry 1 is prerequisite to all other courses in chemistry.

1. ELEMENTARY CHEMISTRY (3)—Lectures and recitations three hours a week; laboratory exercises one afternoon a week.

PROFESSOR CARROLL.

ASSOCIATE PROFESSOR MORROW,

1d. DESCRIPTIVE CHEMISTRY (2)—Elementary chemistry treated descriptively and historically. Laboratory work may be done in connection with the course. *Primarily for B. A. students whose majors are not in science.* PROFESSOR CARROLL.

2. GENERAL INORGANIC CHEMISTRY (3-4)—Lectures and recitations three hours per week. Smith's *General Inorganic Chemistry* is the text-book used. Three hours of work are required; an additional hour is optional. PROFESSOR CARROLL.

2l. LABORATORY EXERCISES (1-2)—To accompany Chemistry. Smith's *Laboratory Outline of General Chemistry* is used as a basis for the work. PROFESSOR CARROLL.

3. ELEMENTARY ORGANIC CHEMISTRY (2)—Lectures and recitations twice a week. Moore's *Outlines of Organic Chemistry* is the text-book used. *Prerequisite:* Chemistry 1.

ASSOCIATE PROFESSOR MORROW.

31. LABORATORY EXERCISES IN ORGANIC CHEMISTRY (1-2)—To accompany Chemistry 3. ASSOCIATE PROFESSOR MORROW.

4. ADVANCED ORGANIC CHEMISTRY (3)—Lectures and recitations three hours per week. ASSOCIATE PROFESSOR MORROW.

41. ORGANIC PREPARATIONS (1-2)—Exercises in organic chemistry, with the manuals of Gattermann, Levy, and Fischer as a basis. This course should be taken in connection with Chemistry 4. ASSOCIATE PROFESSOR MORROW.

5. QUALITATIVE ANALYSIS (2-3)—One lecture or conference per week, with laboratory work, during either semester or throughout the year. PROFESSOR CARROLL.

ASSOCIATE PROFESSOR MORROW.

6. QUANTITATIVE ANALYSIS (2-5)—One lecture or conference per week with laboratory work, for one semester or during the year. The credit given will depend on the quality of the work and the number of determinations made. The course will be varied to suit the needs of individual students.

PROFESSOR CARROLL.

7. QUANTITATIVE ANALYSIS (2-5)—Occasional lectures and conferences. More complicated gravimetric and volumetric processes of analysis. Credit determined as for Chemistry 6.

PROFESSOR CARROLL.

8. QUANTITATIVE ANALYSIS (2-5)—A continuation of Chemistry 6 or Chemistry 7. The work done will be varied to suit the needs of the student. Engineering students may perform exercises in technical gas analysis, the analysis of fuels, oils, etc. *Prerequisite:* At least one and one-half hours of Chemistry 5 and 6. PROFESSOR CARROLL.

9. WATER ANALYSIS (2-3)—A course in the methods of sanitary and technical water analysis, primarily for engineering students. The discussion and interpretation of results of the various analyses will be illustrated in occasional lectures and conferences. *Prerequisite:* At least 1½ hours of Chemistry 5 and of Chemistry 6. PROFESSOR CARROLL.

10. ELECTRO-CHEMICAL ANALYSIS (2-5)—Quantitative analysis by electrolysis. Laboratory exercises with occasional lectures during the year or either semester. PROFESSOR CARROLL.

11. PHYSICAL CHEMISTRY (3)—Lectures three hours per week for one semester, or two hours a week for both semesters. *Prerequisite:* Chemistry 1 and a certain amount of Chemistry 5 and 6; Mathematics 1a and 1b; Physics 1.

PROFESSOR CARROLL.

111. LABORATORY EXERCISES IN PHYSICAL CHEMISTRY (2-3)—To accompany Chemistry 11. PROFESSOR CARROLL.

12a. TEACHER'S COURSE (3)—Two hours of lectures and conferences and three hours of practice per week. Designed for prospective high school teachers. *Prerequisite:* Chemistry 1, 2, 3, 5, 6, 11. PROFESSOR CARROLL.

13b. ELECTRO-CHEMISTRY (3)—Elementary theoretical and applied electro-chemistry. Lectures and laboratory exercises. PROFESSOR CARROLL.

14b. HISTORY OF CHEMISTRY (2)—Lectures, assigned readings, and reports. PROFESSOR CARROLL.

15. CHEMICAL COLLOQUIUM (2)—Readings and discussions two hours per week. Articles in German and French chemical journals are the basis of the work. PROFESSOR CARROLL.

16. QUALITATIVE AND QUANTITATIVE SPECTRAL ANALYSIS AND COLORIMETRY (3)—One lecture per week and laboratory exercises in spectral analysis and colorimetry, during either semester. Kruess' *Kolorimetrie und quantitative Spectralanalyse* and Formanek's *Die qualitative Analyse anorganischer Koerper* will be used for reference. *Prerequisite:* Chemistry 5, Chemistry 6. PROFESSOR CARROLL.

17. RESEARCH WORK—Problems in research will be given to graduate students and to others competent to undertake such work. A reading knowledge of German and French is indispensable. PROFESSOR CARROLL.

18. JOURNAL MEETING (1)—The instructors and advanced students of the department meet once a week for discussion of articles in the current chemical journals.

## ECONOMICS AND SOCIOLOGY

PROFESSOR BROUGH, ASSOCIATE PROFESSOR CAROTHERS.

The courses offered in this department are designed to give instruction in the fundamentals of economic theory and the problems of current economic, social, and public interest, and to prepare students for the duties of citizenship and participation in the professions of law, politics, journalism, financing and teaching—in short, for professional and business careers.

*Economics 1 is a prerequisite to all courses except 2, 7, 9a and 10. Courses 6, 7, and 10 are open to Juniors and Seniors only.*

*Credit may be granted for one semester's work in 1, 3, 5, 7, 9, and 10.*

1. PRINCIPLES OF ECONOMICS (3)—Text-books: Bullock's *Introduction to the Study of Economics*, and Ely's *Outlines of Economics*, with assigned reading amounting to seventy-five pages in carefully selected works on economics outside the text-books. Sections: M. 1, Tu. 2, Th. 2; M. W. F. 2; M. W. F. 3; M. W. F. 4.

PROFESSOR BROUGH.

ASSOCIATE PROFESSOR CAROTHERS.

2. BUSINESS LAW (3)—In this course a study is made of the laws of Arkansas, the law of contracts, bills, checks, and notes, agency and other elements of business law. Text-books: Huffcut's *Elements of Business Law*, Kirby's *Digest of Arkansas Laws*, and Harriman on *Contracts*. Tu. 6. W. 1. F. 1.

PROFESSOR BROUGH.

3a. RAILWAY TRANSPORTATION (3)—The railway systems of the United States and foreign countries, railroad geography, rate-making and government control and regulation are considered. Text-books: Johnson's *American Railway Transportation*, supplemented by assigned reading and reports.

3b. MONEY AND BANKING (3)—The theory of money, banking and credit is considered, and current financial problems and practical banking are stressed. Text-book: White's *Money and Banking*. M. 5. Tu. 2. Th. 2.

ASSOCIATE PROFESSOR CAROTHERS.

4. INSURANCE (3)—A thorough study is made of the principles of life, fire, accident and marine insurance, of insurance poli-

cies, and of the law of insurance. Text-books: Alexander's *Life Insurance Company*, and Huebner's *Property Insurance*, supplemented by assigned readings. M. W. F. 6.

ASSOCIATE PROFESSOR CAROTHERS.

5a. FINANCIAL HISTORY OF THE UNITED STATES, TAXATION AND PUBLIC FINANCE (3)—A thorough investigation is made of the financial history of the United States, and an intensive study is made of the problems of taxation and financial administration. Text-books: Dewey's *Financial History of the United States*, and Seligman's *Essays in Taxation*, supplemented by assigned readings.

5b. ECONOMIC HISTORY OF THE UNITED STATES (3)—A comprehensive study is made of the history of our industrial evolution. Text-book: Bogart's *Economic History of the United States*. M. 6. Tu. 4. Th. 4. PROFESSOR BROUH.

6. SOCIALISM AND SOCIAL REFORM (3)—A thorough study is made of the economics and politics of the Socialist movement, with a consideration of the practical problems of social reform. Text-book: Ely's *Socialism and Social Reform*. Tu. Th. 6.

ASSOCIATE PROFESSOR CAROTHERS.

7. SOCIOLOGY (2)—In this course the fundamental facts of social institutions are outlined, and a detailed study is made of the chief social problems of the present day. Text-book: Wright's *Practical Sociology*, supplemented by assigned readings on the family, population, immigration, etc. Tu. Th. 7.

ASSOCIATE PROFESSOR CAROTHERS.

8. ECONOMIC PROBLEMS (3)—Lectures, debates and discussions of the tariff, monopoly, labor, railroad, government ownership, central bank, income tax, injunction, land reform and prohibition problems. One period each week is devoted to lectures; one to debates by members of the class, and one, to discussions and reports in class. Text-books: Tarbell's *Tariff in Our Times*, and *Intercollegiate Debates*, Vol. 20, supplemented by assigned readings. M. Tu. Th. 5. PROFESSOR BROUH.

9a or 9b. ENGINEERING LAW (3)—Elective for Juniors and Seniors in the courses in Engineering. This course makes a study of the legal questions involved in the work of the engineer. Text-books: Wait's *Engineering and Architectural Jurisprudence*, and Clark's *Architect, Owner and Builder Before the Law*. M. W. F. 3. PROFESSOR BROUH.

10. ECONOMIC LAW (3)—A study of law with special reference to real estate, corporations, injunctions and evidence. Textbooks: Walker's *American Law*, and *Greenleaf on Evidence*, and *Arkansas Reports*. Tu. 3. W. 5. F. 3. PROFESSOR BROUH.

## EDUCATION

PROFESSOR BLAND, MRS. SIMPSON, MISS SANBORN.

The courses of the department of education are primarily for the professional training of teachers for elementary or secondary school work. The courses offered afford a study of the principles and processes involved in education and give practical training in the art of teaching.

*The Training School*—A training school for teachers forms a necessary part of the work of the department of education. In the training school, students specializing in the department do practice-teaching under the supervision of experienced critic teachers.

In the new Peabody Building ample provision has been made for the training school. Rooms are provided where children doing work of both elementary and high school character will be taught.

In the second year of the normal course, candidates for the L. I. certificate are required to do observational and teaching work one hour each day throughout the year. The work will be so selected as to give preparation and practice in the particular kind of teaching that the candidate proposes to follow.

1a. ELEMENTARY PSYCHOLOGY (3)—The different functions of the mind are studied from the physiological and experimental standpoints. The practical side of the subject will be emphasized in order to show the relation between a knowledge of psychology and the process of instruction. M. W. F. 1, and M. W. F. 2.

2b. HISTORY OF EDUCATION (3)—This course will emphasize the life and theories of educational reformers, and will show the influence of the theories upon our present system of education. Some attention will be given to the growth of education in Arkansas. M. W. F. 2, and M. W. F. 2.

3a. THE TEACHING PROCESS (2)—The scientific principles underlying good teaching are studied. T. Th. 1, and T. Th. 2.

3b. OBSERVATION AND THE CURRICULUM (2)—Observation and discussion of recitations in elementary and secondary school work are required. In addition, considerable attention will be given to working out a suitable course of study. *Prerequisite:* Education 3a. T. Th. 1, T. Th. 2.

4. TEACHING.—Daily teaching for one hour in the Training School in practical application of the principles of instruction. Teachers' meeting one hour per week. *Prerequisite:* Education 3a and 3b. Teachers' meeting W. 4. Other hours to be assigned.

5a. EDUCATIONAL PSYCHOLOGY (2)—Special attention is given to such subjects as sources of interest, characteristics of imitation, heredity, attention, memory, imagination, emotions, will, and character. *Prerequisite:* Education 1a.

5b. THE MODERN HIGH SCHOOL (2)—The high school; its functions; organization, management, and equipment; the principal; the teacher; the pupil; the class exercise; social life; the high school and the community; present problems. (This course is offered especially for teachers who expect to do high school work.)

6b. THE ELEMENTARY SCHOOL (2)—Topics similar to those treated in course 5b will be discussed in their relation to the elementary school. (This course is offered for teachers who expect to teach in the elementary schools.) T. Th. 4.

## ENGLISH

PROFESSOR SHANNON, ASSOCIATE PROFESSOR GREEVER, ASSOCIATE  
PROFESSOR GOODE, MR. WILLIAMS, MR. WALKER, MR. EVANS.

The aim of the courses in the department of English is (1) to train students to write clearly and correctly their mother-tongue and (2) to teach them to understand and appreciate the best in literature. These two purposes go hand in hand, for composition work can be made an aid to the student's appreciation of good literature just as reading good literature will certainly improve his style. Every course in composition, therefore, is accompanied by a considerable amount of required reading and every course in literature requires a certain amount of written criticism.

Students who select English as their major subject are required to take, besides English 1 and 2, twelve hours from the

following courses: English 4a or 4b in the junior year; two courses from English 10, 11b and 12; and the remaining number of hours from English 3b, 4a, 4b, 5a and 5b, 6a and 6b, 7a and 7b, 8a, 9a and 9b, 10, 11b, and 12.

1. RHYTHM AND ENGLISH COMPOSITION (3)—Lectures, recitations, themes, and conferences. Practice in exposition, argumentation, description, and narration. The instruction will be based chiefly upon a study of modern masters of English prose style, and upon the student's own themes. An outline of the course will be furnished each student at the first meeting of the class. *Required of all freshmen.*

ASSOCIATE PROFESSOR GOODE.

MR. WILLIAMS.

MR. WALKER.

MR. EVANS.

2. HISTORY AND DEVELOPMENT OF ENGLISH LITERATURE IN OUTLINE (3)—This course is intended to give the student a general view of the history and development of English literature from Anglo-Saxon times to the end of the nineteenth century. Selected masterpieces, representative of different periods, are studied in class. A considerable amount of outside reading and weekly reports are required. The class meets as a whole once a week for lectures on the periods in English literature and in small sections twice a week for more detailed study of the reading required. Text-book: *Century Readings for a Course in English Literature.* *Required of all sophomores in the B. A. course; elective for others who have credit for English 1.*

PROFESSOR SHANNON.

ASSOCIATE PROFESSOR GOODE.

MR. WILLIAMS.

MR. WALKER.

3b. AMERICAN LITERATURE (3)—After a brief survey of colonial and revolutionary literature a fuller study is given to Irving, Cooper, Bryant, Poe, Emerson, Lowell, Longfellow, Hawthorne, Whittier, Holmes, and Whitman, followed by a consideration of the minor poets of the South. *Open to students who have credit for English 2.*

MR. WILLIAMS.

4a. ENGLISH COMPOSITION: EXPOSITION AND ARGUMENTATION (3)—The purpose of this course is to teach advanced students

the principles of exposition and argumentation and to develop reasoning power as well as the ability to write clear and vigorous prose. As training in thorough investigation each student is required during the semester to do extensive reading upon some subject and present the results of his work in a thesis which may be either expository or argumentative in character. Text-books: Gardiner's *Forms of Prose Literature*, Foster's *Argumentation and Debating*, and the current numbers of the *Atlantic Monthly*. *Open to students who have credit for English 2.*

ASSOCIATE PROFESSOR GOODE.  
MR. EVANS.

4b. ENGLISH COMPOSITION: NARRATION AND DESCRIPTION (3)—This course is intended for advanced students who are interested in composition from a literary standpoint. The art of description and the structure of the short story will be studied. *Open to students who have credit for English 2.* MR. EVANS.

5a. NINETEENTH CENTURY PROSE (3)—This course is devoted to a study of the novel beginning with its development in the eighteenth century. Considerable reading in the works of the chief novelists and frequent written reports are required.

5b. NINETEENTH CENTURY PROSE (3)—This course deals with the essay. Attention is given chiefly to Lamb, Macauley, Carlyle, Newman and Arnold. Reading and reports. *Open to students who have credit for English 2.* MR. WILLIAMS.

*Omitted in 1913-14.*

6a. SIXTEENTH CENTURY LITERATURE (3)—The work of the course deals with the non-dramatic literature of this period. A study is made of the Elizabethan lyric and the beginnings of English prose style. Lectures, assigned readings and reports.

6b. SIXTEENTH CENTURY LITERATURE (3)—The course is devoted to a study of the pre-Shaksperean drama. Its development is traced from the miracle and morality plays to Shakspere. Reading and reports. Text-book: Manly's *Specimens of the Pre-Shaksperean Drama*, 2 volumes. *Open to students who have credit for English 2.* MR. WALKER.

*Omitted in 1913-14.*

7a. SEVENTEENTH CENTURY LITERATURE (3)—The course includes a consideration of the works of Bacon, Browne and Walton and the lyrics of the reigns of James I and Charles I. Lec-

tures, assigned reading, and reports. Text-book for the lyrics: Schelling's *The Seventeenth Century Lyrics*.

7b. SEVENTEENTH CENTURY LITERATURE (3)—The course is devoted to an intensive study of the life and poetry of Milton. *Open to students who have credit for English 2.*

MR. WALKER.

8a. EIGHTEENTH CENTURY LITERATURE (3)—This course includes the prose and poetry of the period of Classicism in English literature. It deals chiefly with the works of Defoe, Swift, Addison, Steele, Pope, Johnson, Goldsmith and Burke. Lectures, assigned reading, and reports. *Open to students who have credit for English 2.*

MR. WILLIAMS.

9a. NINETEENTH CENTURY POETRY (3)—The work of the course traces the development of the romantic movement in English poetry from its beginning in the eighteenth century to the death of Keats. Especial attention is given to the poetry of Wordsworth, Coleridge, Byron, Keats and Shelley.

9b. NINETEENTH CENTURY POETRY (3)—The course will be devoted to the Victorian poets, especially Tennyson and Browning. *Open to students who have credit for English 2.*

ASSOCIATE PROFESSOR GOODE.

10. CHAUCER (3)—This course is a study of Chaucer's language and literary style for the purpose of comprehending his genius as a poet. Text-books: Liddell's *Chaucer: Prologue, Knight's Tale and Nonnes Prestes Tale*, and Skeat's *The Student's Chaucer*. Students must have the consent of the instructor before electing this course. *Open to students who have credit for English 2.*

PROFESSOR SHANNON.

11b. ANGLO-SAXON (3)—The purpose of this course is to give students a knowledge of the earliest form of English, and constant comparison of modern English with Anglo-Saxon is made. Text-books: Bright's *Anglo-Saxon Reader*, Lounsbury's *History of the English Language*. *Open to students who have credit for English 2.*

PROFESSOR SHANNON.

12. SHAKSPERE (3)—A critical study of six of Shakspere's plays: for 1913-14, *Macbeth*, *Henry IV* (both parts), *King Lear*, *All's Well That Ends Well*, *The Winter's Tale*. *Open to students who have credit for English 2.*

PROFESSOR SHANNON.

13. ENGLISH COMPOSITION (3)—This course is intended primarily for students in the colleges of engineering and agriculture who wish further training in composition beyond English 1. The purpose is to serve the practical needs of students who shall later have occasion to write clearly and concisely upon technical subjects. *Elective for engineering and agricultural students who have credit for English 1.*

MR. WALKER.

### GEOLOGY AND MINING

PROFESSOR DRAKE, ASSISTANT PROFESSOR MATHER.

In the instruction in geology much emphasis is placed upon field work. Within easy reach are the formations from the Cambro-Ordovician to the Pennsylvanian, inclusive. The Ozark plateau region about Fayetteville offers abundant opportunity for physiographic studies, while for training in stratigraphic mapping it is unexcelled.

Students who major in the department of geology are required to take courses 1a, 1b, 2, 3, 5a, 6a, 7b or 4a, and 8. Those who are desirous of qualifying as teachers in this science are advised so to arrange their electives as to prepare themselves to teach geology and some modern language, or geology and some other science. All major students in geology are required in their senior year, to prepare a report including maps, sections, and other necessary illustrations of some area where they have worked out the geology.

To students in agriculture, courses 1a, 1b, and 6a are recommended.

To students desiring a general knowledge of the subject, courses 1a, 1b, and 2 are recommended.

Students who are preparing themselves to teach geography and physiography are expected to complete courses 1a, 1b, and 3.

1a. GEOGRAPHY (3)—An elementary course suited to freshmen, and adapted to the needs of teachers of geography and physiography in secondary schools. Text-book: Salisbury, Barron and Tower's *Elements of Geography*. T. W. Th. 3 and 7.

PROFESSOR DRAKE.

ASSISTANT PROFESSOR MATHER.

1b. DYNAMIC AND STRUCTURAL GEOLOGY (3)—The materials of the earth; the geological work of the atmosphere and water (including streams, lakes, the ocean, and underground water); glaciers and glaciation; diastrophism; vulcanism. Text-book: Chamberlain and Salisbury's *College Geology*. Prerequisite: Geology 1a. T. W. Th. 3 and 7.

PROFESSOR DRAKE.

ASSISTANT PROFESSOR MATHER.

2. HISTORICAL GEOLOGY (3)—The origin of the earth; earth history; the evolution of life. Text-book: same as in Geology 1b. Prerequisite: Geology 1b. M. T. W. 2.

ASSISTANT PROFESSOR MATHER.

3. PRACTICAL GEOLOGY (either one or both semesters) (3)—Field and laboratory work nine periods a week with the construction of geologic maps and sections. Prerequisite: Geology 1b.

PROFESSOR DRAKE.

ASSISTANT PROFESSOR MATHER.

4a. STRATIGRAPHIC PALEONTOLOGY (3)—Field and laboratory work involving the collection of a local fauna, its identification, description, and correlation. Prerequisite: Geology 2.

ASSISTANT PROFESSOR MATHER.

5a. CRYSTALLOGRAPHY AND MINERALOGY (3)—Lectures and recitations three hours a week during the first semester on the elements of geometric crystallography followed by laboratory work upon the determination of minerals. Text-book: Rogers' *Study of Minerals*. Prerequisite: Solid Geometry and Chemistry I. Th. F., 5, 6, 7, 8.

ASSISTANT PROFESSOR MATHER.

PROFESSOR DRAKE.

5b. DETERMINATIVE MINERALOGY AND BLOW-PIPE ANALYSIS (2, 3, or 4)—Determination of minerals before the blow-pipe, and in the wet way. Text-book: Rogers' *Study of Minerals*. Prerequisite: Chemistry I. Th. F., 5, 6, 7, and 8.

ASSISTANT PROFESSOR MATHER.

6a. ECONOMIC GEOLOGY (3)—The formation, modes of occurrence, uses and geographic distribution of economic geological products and mine valuation. Prerequisites: Chemistry I, Geology 1b, and Geology 5b.

PROFESSOR DRAKE.

7b. MINING (3)—Explosives; driving shafts, adits and drifts; stoping; timbering; hoisting; transportation; drainage; ventilation.

PROFESSOR DRAKE.

8. PETROLOGY (3)—Microscopical and macroscopical determination of minerals and rocks; classification of igneous rocks.  
*Prerequisite:* Geology 5a and 5b. One recitation and two laboratory periods.

PROFESSOR DRAKE.

### GERMAN

PROFESSOR BRISCOE, ASSOCIATE PROFESSOR LENTZ.

The courses in German aim to acquaint the student with the German language and literature as a means of culture or with the language for use in other fields of knowledge. Students who major in the department will be required to do not less than eighteen hours of work in German.

1. ELEMENTARY COURSE (3)—Grammar and composition with the reading of easy narrative prose.

2. MODERN GERMAN PROSE (3)—Readings of prose from nineteenth century authors, such as Storm, Heyse, Hauff, Baum-bach, Freytag. Drill in grammar with the texts as a basis; dictation in German and study of German idioms. Practice in German conversation.

2c. GERMAN COMPOSITION (2)—This course supplements German 2 and should be taken in connection with it, and consists of oral and written reproduction of assimilated texts.

3. LESSING, GOETHE AND SCHILLER (3)—The reading of selected works of these authors and a study of their lives. Collateral reading and reports. *Prerequisite:* German 1, 2 and 2c.

4. GERMAN COMPOSITION AND CONVERSATION (3)—Practice in conversation and composition, suited especially to students who intend to teach German. *Prerequisite:* German 1, 2, and 2c.

5. HISTORY OF GERMAN LITERATURE (3)—The history of German literature to 1740, with readings of modernized selections from Ulfilas, the Lay of Hildebrand, the Eddas, Beowulf, the Nibelungenlied, and authors of the Old High German and Middle High German Periods. *Not given in 1913-1914.*

6. HISTORY OF GERMAN LITERATURE (3)—The history of German literature from 1740 to the present. A study of modern literary movements. Reading of selections from the principal writers. Lectures, collateral reading and reports. *Prerequisite:* German 1, 2, 2c and 3.

7. GERMAN LYRIC AND BALLAD POETRY (2)—Lyrics and ballads of the eighteenth and nineteenth centuries. Collateral reading and reports. *Prerequisite:* German 1, 2, 2c, 3.

8. THE GERMAN NOVELLE (3)—Extensive reading of *Novellen*; reports. Students who elect this course must be able to read German with ease.

9. GERMAN DRAMA OF THE 19TH CENTURY (2)—Interpretations and readings of dramas of Kleist, Grillparzer, Hebbel, Ludwig, Wildenbruch, Sudermann, Hauptmann and Fulda. *Prerequisite:* German 1, 2, 2c, 3.

10. SCIENTIFIC GERMAN (2)—A reading course for students specializing in the sciences. Rapid reading of material dealing with the chief branches of science. Open to students who have completed two years of work in German. *Not given unless applied for by at least six students.*

11. MIDDLE HIGH GERMAN (2)—*Not given in 1913-1914.*

#### HISTORY AND POLITICAL SCIENCE

PROFESSOR REYNOLDS, PROFESSOR THOMAS, ASSISTANT PROFESSOR STEPHENSON.

The courses in this department are designed to afford general culture, and in addition are essential to those who are looking to law, journalism, politics, the ministry, or any other public calling. History 1a and 1b are foundation work and should be taken in the freshman year. Other courses are not open to freshmen.

1a. MEDIEVAL HISTORY (3)—This course is designed to give the student a knowledge of the essential contributions of the ancient world to history, of the reorganization of German society upon the basis of Græco-Roman civilization, and the rise of the modern states.

1b. MODERN HISTORY (3)—Beginning where History 1a leaves off, the class will study the great religious wars, absolutism, the contest for supremacy on the high seas, the French Revolution, and the democratic movements of the nineteenth century. English history will also be emphasized, about one period a week being devoted to it. All students seeking a liberal education should take this course. Text-books: Robinson's *History of Western Europe* and *Readings in European History*;

Cheyney's *Short History of England*; Richardson's *Syllabus*. T. Th. 2; M. F. 2; M. F. 4; M. F. 6. All sections meet Wednesday, the fifth period. PROFESSOR THOMAS.

ASSISTANT PROFESSOR STEPHENSON.

2. HISTORY OF ENGLAND (3)—A general culture course covering the whole of English history, treating the political, the literary, the religious, and the economic activities of the people. The origin and growth of the more important institutions, such as the kingship, parliament, cabinet, courts, and church; the reformation, the literature, the economic changes; the struggle for constitutional government and the colonial system will all receive attention. Primarily for sophomores.

ASSISTANT PROFESSOR STEPHENSON.

3. THE UNITED STATES SINCE 1776 (3)—After a brief study of the Confederation and of the formation of the Constitution, the subsequent history of the United States will be treated with special reference to political and constitutional development. Special attention will be given to the growth of political parties, the gradual sectional division of the country over slavery and state's rights, and the results of the Civil War and Reconstruction. Much library work will be required. M. W. F. 4.

PROFESSOR THOMAS.

4a. AMERICAN STATE GOVERNMENT (2)—A study of the place of the state in our federal system, of the constitutional law of the states; of the structure and workings of American state governments as they exist today, and of some of the practical problems now before the states, such as the initiative and referendum, control of corporations, legislative reference, proportional representation.

4b. POLITICAL PARTIES (2)—Organization and workings of political parties. The caucus, the convention, the boss, the primary; methods of state control. Largely a library and lecture course. W. F. 2.

PROFESSOR THOMAS.

5a. ENGLAND UNDER THE TUDORS AND THE STUARTS (3)—A study of the political, religious, literary, and economic history of England during these two periods.

5b. THE BRITISH EMPIRE (3)—While a brief survey of the general history of England through the eighteenth and nineteenth centuries will be made, attention will be devoted mainly to a

study of England's colonial history and of the forces that have developed the British Empire of today. An analysis of the present imperial policy will be given. A library and lecture course. *Prerequisite:* History 1a and 1b or Junior standing. M. T. Th. 2.

ASSISTANT PROFESSOR STEPHENSON.

6a. NATIONAL GOVERNMENT (3)—A study and comparison of the structure and powers of the national governments of England, United States, France, Germany and Switzerland. Special emphasis will be given to the place of the federal system in public law. This course will be based on the works of Burgess, Beard, Garner, and the constitutions of the different countries.

6b. INTERNATIONAL LAW (3)—A brief sketch of the history of international law, and a study of the principles now considered binding on civilized nations. For juniors or seniors who have had at least three hours of college history. Text-book: Davis' *Elements of International Law*. Considerable library work will be required. M. W. F. 3. PROFESSOR THOMAS.

7a. FRENCH REVOLUTION AND THE NAPOLEONIC ERA (2)—France on the eve of the Revolution; French political philosophers; causes and events of the Revolution, and the wars of Napoleon.

7b. DEMOCRATIC MOVEMENT IN THE NINETEENTH CENTURY (2)—A brief survey of Europe in 1815 will be made after which will be considered the development of constitutional government; the unification of Italy and Germany; and the present condition of world politics. T. Th. 4.

ASSISTANT PROFESSOR STEPHENSON.

8. LABORATORY (1)—Laboratory work two hours a week in contemporary European history. For this work a room is equipped with current German, French and English periodicals, Statesman's Year Book, Annual Register, Who's Who, World's Almanac, atlases, maps, cyclopædias, and general histories. In the laboratory each student will study present day European events and problems and their historical setting; there will be periodical reports on topics and frequent conferences with instructors. A reading knowledge of German or French, while not required, will be helpful. PROFESSOR THOMAS.

9a. THE UNITED STATES 1763-1783 (2)—The colonies in their relations to the mother country with special reference to the at-

tempt at imperial taxation. Particular attention will be given to the literature of the period as preparing the colonists for separation. The steps leading to the Declaration of Independence will be traced in detail; also the failure of the Confederation and the formation and adoption of the Constitution.

9b. THE CIVIL WAR AND RECONSTRUCTION (2)—The first part of this course will deal mainly with the events leading up to the war; the second, with political, economic and social phases of Reconstruction. *Prerequisite:* Six hours of history. T. Th. 6.  
PROFESSOR THOMAS.

10. RECONSTRUCTION IN ARKANSAS (Seminar) (1)—A study from original sources of the history of Reconstruction in typical counties of Arkansas. Students will gather in the summer the data from county records, newspaper files, interviews, etc., and after numerous conferences with the instructor the following year they will prepare papers or monographs.

11a. HISTORY OF GREECE (2)—This course is designed to give a more extensive knowledge of the history and the institutions of the Greeks. A general knowledge of the subject is presumed.

11b. HISTORY OF ROME (2)—The explanations made above in regard to the history of Greece, apply to this course.

ASSISTANT PROFESSOR STEPHENSON.

12. HISTORY OF THE UNITED STATES (3)—This course is intended for those who expect to teach history, especially in the high schools. All students must supply themselves with McKinley's *Illustrated Topics for American History*, Coman's *Industrial History of the United States*, Garner's *American Government*, and a standard history of the United States. Students who have received one credit for entrance credit in United States History will not be allowed to take this course and those who have taken it may not receive credit in History 3.

PROFESSOR THOMAS.

#### MATHEMATICS AND ASTRONOMY

PROFESSOR DROKE, ASSOCIATE PROFESSOR DUNN, ASSOCIATE  
PROFESSOR HARDING, MR. TURNER.

Students who major in mathematics must take Mathematics 3, 5, 6, 8, and 9, or their equivalent. Mathematics 11a, 11b, 12, 13,

14, 15 may be elected by graduate or undergraduate students. Not more than two of the last mentioned courses may be taken in the same year.

1a. ALGEBRA (3)—Text-book: Reitz and Crathorne's *College Algebra*. M. W. F. 3, 4.

1b. SOLID GEOMETRY (3)—Sections and periods the same as in 1a. Text-book: Wentworth's and Smith's *Solid Geometry*.

2a. PLANE TRIGONOMETRY (3)—Text-book: Rothrock's *Trigonometry*. T. W. Th. 1, 3, 4.

2b. ANALYTIC GEOMETRY (3)—Sections and periods the same as in 2a. Text-book: Fine and Thompson's *Coordinate Geometry*. Mathematics 1a and 1b, 2a and 2b are required of freshmen in the courses in engineering in the order given, but any one of these courses may be elected in either the first or second semester by freshmen of other departments.

3. ALGEBRA, SOLID GEOMETRY, PLANE TRIGONOMETRY (4)—About twelve weeks are given to each subject, Algebra coming first.

This course is recommended for teachers and all others who have not had a thorough course in high school algebra.

4a. ALGEBRA (continuation of 1a) (3)—*Required of sophomore engineering students.*

4b. ANALYTIC GEOMETRY (continuation of 2b) (3)—Required of sophomores in the courses in engineering.

5. ANALYTIC GEOMETRY (3)—Elective for B. A. students.

6. ALGEBRA (continuation of the algebra of Mathematics 3) (2)—Elective for sophomores in the College of Arts and Sciences.

7. DIFFERENTIAL AND INTEGRAL CALCULUS (3)—*Required of sophomore engineering students.* Text-book: Townsend and Goodenough's *Essentials of Calculus*.

8. DIFFERENTIAL AND INTEGRAL CALCULUS (4)—*Elective for A. B. juniors and seniors, required of those who major in mathematics.* Text-book: Granville's *Calculus*.

9. SPHERICAL GEOMETRY, SPHERICAL TRIGONOMETRY, AND THEORY OF EQUATIONS (2)—*Required of those majoring in Mathematics.*

10a. ALGEBRA AND PLANE TRIGONOMETRY (4)—In Algebra this course includes factoring, fractional equations, theory of exponents, radicals and quadratic equations; in trigonometry, trigonometric functions, solution of right angles, relations among the trigonometric functions, functions of multiple and submultiple angles, and solution of triangles. *Required of all sophomores in the College of Agriculture.*

11a. DIFFERENTIAL EQUATIONS (3)—First or second semester. Text-book: Murray's *Differential Equations*.

11b. ANALYTIC GEOMETRY OF THREE DIMENSIONS (3)—Second or first semester. Books of reference: C. Smith's and Frost's *Solid Geometry*; Salmon's *Geometry of Three Dimensions*.

12. THEORETICAL MECHANICS (2).

13. ADVANCED CALCULUS (3).

14. ADVANCED ALGEBRA (2).

15. MODERN PURE GEOMETRY (3)—First or second semester. Books of reference: Godfrey and Siddon's *Modern Geometry*, and Askwith's *Pure Geometry*. This course will include the discussion of the theorems of Ceva and Menelaus, Harmonic Section, Pole and Polar, Orthogonal Circles, the Circle of Apollonius, Ptolemy's Theorem, Coaxal Circles, Inversion, Orthogonal Projection, and Cross-Ratio. These topics will be treated in an elementary way.

All those who are preparing to become teachers of mathematics in high schools will find this course very helpful. *Prerequisite:* Mathematics 1a and 1b, 2a and 2b.

PROFESSOR DROKE.

#### ASTRONOMY

16. DESCRIPTIVE ASTRONOMY (3)—Lectures and recitations, with occasional meetings at night for observation. Text-book: Young's *Manual of Astronomy*.

ASSOCIATE PROFESSOR HARDING.

17. SPHERICAL AND PRACTICAL ASTRONOMY. (2)—Astronomical coordinates; parallax; time; use of a sextant and transit instrument; determination of latitude, etc.

ASSOCIATE PROFESSOR HARDING.

18. CELESTIAL MECHANICS (2).

## MILITARY SCIENCE AND TACTICS

NOBLE JAMES WILEY, *First Lieutenant U. S. A., Professor of Military Science and Tactics.*

The act of Congress donating public lands for educational purposes requires that institutions which are the beneficiaries of such donations include military science and tactics in their course of instruction.

The purpose of the military department is three-fold:

1st. By a system of military exercises to reach the entire male student body of the University (a great number of whom do not take part in college athletics) and to build up the physique of the student, giving him a correct carriage and manly bearing.

2nd. By a modified form of military discipline to promote habits of neatness, order, punctuality, respect for authority, for the sovereign laws of the state, and the rights of others.

3rd. By training the student in the use of arms and the duties of the soldier, to imbue him with ideas of patriotism and loyalty to his state and to the Union.

In accordance with the acts of Congress, the regulations of the University require all male students, not physically disabled (except members of the senior class, with whom military instruction is optional), to take the practical course in military science and tactics.

## INSTRUCTION IN MILITARY SCIENCE AND TACTICS.

The system of instruction closely follows that used in the United States Army, and is arranged in two courses as follows:

1. THEORETICAL.—Lectures and instruction in Infantry Drill Regulations; Field Service Regulations; Manual of Guard Duty; Firing Regulations for Small Arms.

2. PRACTICAL.—The instruction covers the mechanisms of infantry drill, Butt's rifle drill, bayonet exercise, calisthenic exercises, signalling, practical demonstrations in first aid to the injured, and field exercises.

The cadets are organized into one battalion, composed of a field staff, a band and four companies and a signal corps detachment. The officers and non-commissioned officers of the cadet battalion are selected from those cadets who are most proficient in their drill, most military in their bearing and most exemplary

in their conduct and general deportment. The captains and lieutenants are taken from among those members of the senior class who elect drill, and from the junior class, and the sergeants and corporals from the junior and sophomore classes, respectively.

The band constitutes one of the most interesting and instructive features of the military organization and takes part in all military ceremonies.

Competitive drills are held at the close of each college year and prizes are awarded for proficiency.

The three students of the senior class who have shown the greatest interest and efficiency in the department, are reported by name to the Secretary of War. The President of the United States, in appointing officers to the regular army from civil life, gives preference to those whose names are so recorded. Upon graduation, officers of the cadet battalion are brevetted in the State Guard with the rank of Second Lieutenant.

#### INSPECTION.

Under the authority of the President of the United States the military department of the University is inspected every year by an army officer specially detailed for this purpose.

#### EQUIPMENT.

Each male student, matriculating at the University for the first time, is required to supply himself with a new uniform, complete, consisting of the following articles:

One blouse, cadet gray; one pair of trousers, cadet gray; one cap, cadet gray; two pairs of trousers, white duck; two pairs of gloves, white cotton; two collars, linen.

The contract for supplying the above named articles is let each year by the Board of Trustees to the lowest and best bidder and the goods are delivered to the cadets by the agent of the successful bidder, subject to approval of the Commandant as to fit, quality and workmanship.

#### PHILOSOPHY

##### PROFESSOR GRANT.

The courses in philosophy aid in the development of breadth, balance, and culture; they are also a fundamental part of the preparation for the professions of teaching, law, and medicine.

1a. GENERAL PSYCHOLOGY (3)—This course is intended to serve either as a part of a liberal education or as a preparation for the study of education, law, and medicine. The subject is pursued as a science. The general principles of the thought process are emphasized. Text-book: Angell's *Psychology*.

2b. LOGIC (3)—An introductory course in inductive and deductive reasoning. Special attention will be given to the examination of arguments and debates. Text-book: Hibben's *Logic, Inductive and Deductive*.

3a. ETHICS (2)—This course will familiarize the student with the main aspects of ethical history and theory. Much attention is given to the moral problems that have confronted people from primitive times to the present. A comparative study is made of individual and group morality. Text-book: Dewey and Tuft's *Ethics*.

3b. ETHICS (2)—A continuation of course 3a.

4a. PHILOSOPHY OF EDUCATION (3)—This course treats of the scientific aspects of education, emphasizing the nature, form and limits of education. The intuitive, imaginative and logical epochs will be stressed. Emphasis will be given to the act of learning. Much time will be given to the consideration of social and moral culture, education of the will and habits. Text-book: Rosenblanz's *Philosophy of Education*.

5b. EXPERIMENTAL PSYCHOLOGY (3)—Two hours recitation, two of laboratory work. This course will consist of lectures, readings and reports. The mind will be studied from an experimental view-point. Much time will be given to physiological psychology, the psychology of sensation, perception and memory. Text-book: Titchener's *Text-book of Psychology* and Titchener's *Experimental Psychology*.

6a. ABNORMAL PSYCHOLOGY (3)—This course treats of the psychological conditions and mental phenomena of sleep, dreams, aphasia, insanity, illusions, etc. Lectures, discussions and reports.

7b. SOCIAL PSYCHOLOGY (3)—A study is made of consciousness as developed in the home, neighborhood, school and society. Emphasis is given to the devices that hold together clubs, sects and political parties. Some of the other topics treated

are: public opinion, fashions, social will, mob mind, and the psychology of leadership. Text-book: Cooley's *Social Organization*.

8a. HISTORY OF ANCIENT AND MEDIÆVAL PHILOSOPHY (3)—This course traces the development of philosophic thought from the early Greek period to the Renaissance. Some time will be given to Plato's dialogues.

8b. HISTORY OF MODERN PHILOSOPHY (3)—A continuation of course 8a, tracing the development of speculative thought from the Renaissance to the present. It is recommended that this course be preceded by Philosophy 8a.

## PHYSICS

PROFESSOR RIPLEY, ASSOCIATE PROFESSOR KEMP.

The courses in physics are suited to the needs of students in agriculture, arts and engineering, of students who propose to teach the science, and of students who intend to do graduate work in physics.

1. GENERAL PHYSICS (3)—Recitations two hours a week, with two hours of laboratory work. *Required of students in the courses in engineering and in the B. S. C. course.* T. Th. 3; M. W. 4; T. Th. 6-7; 2, 3, 4. PROFESSOR RIPLEY.

ASSOCIATE PROFESSOR KEMP.

2. GENERAL PHYSICS (3)—A continuation of Physics 1. Lectures and recitations three hours a week. Special attention is given to mechanics, heat and electricity. *Required in the Electrical Engineering and B. S. C. courses;* elective for other students who have had Physics 1 or its equivalent.

3. PHYSICAL LABORATORY (1)—Laboratory work, two hours a week, to accompany Physics 2. Determinations of moment of inertia, tension, center of mass, coefficient of friction, Young's modulus, thermal expansion, heats of fusion and vaporization, capacity, high and low potentials, photometry, etc. F. 6, 7.

ASSOCIATE PROFESSOR KEMP.

4. MECHANICS (4)—A development of the theory of mechanics from the physical standpoint, with practical applications. Either one or two semesters' work may be elected. *Prerequisite:* Physics 2. M. W. F. 1, T. 3. PROFESSOR RIPLEY.

5. EXPERIMENTAL PHYSICS (4)—Lectures and recitations, with demonstrations and experiments three hours a week. Laboratory work, two hours a week. Practical problems and the application of physical laws and principles to every day life. *Open to all students.* M. W. F. 3, and M. W. F. 4.

PROFESSOR RIPLEY.

ASSOCIATE PROFESSOR KEMP.

5b. ELEMENTARY PHYSICS (5)—Lectures, recitations and laboratory work. *Required of sophomores in the B. S. A. course.*

6a or 6b. HEAT (3)—Five hours a week, for the most part laboratory work. *Prerequisite:* Physics 2.

PROFESSOR RIPLEY.

7b. ELECTRICAL MEASUREMENTS (2)—Two hours a week of recitations and discussions in the theory of electrical measuring instruments and electrical measurements. Four hours a week of laboratory exercises in calibrating instruments and tests of conductors, electrolytes and dielectrics.

ASSOCIATE PROFESSOR KEMP.

8a or 8b. LIGHT (2)—Two hours class work a week, treating of the modern theory of light and modern advances in this field of physics. Four hours per week of laboratory work in spectroscopy, the use of the photometer, optical bench, interferometer, optical pyrometer, etc.

PROFESSOR RIPLEY.

9. MATHEMATICAL PHYSICS (3)—Electrodynamics or Thermodynamics. *Prerequisite:* Physics 1, 2, 7b; Mathematics 5 or 6.

ASSOCIATE PROFESSOR KEMP.

10. MOLECULAR PHYSICS (2)—For students in chemistry. Osmosis, vapor density, diffusion, electro-chemistry. *Prerequisite:* Physics 1.

PROFESSOR RIPLEY.

11b. ACOUSTICS (2½)—Two recitations and four hours of laboratory work a week. *Prerequisite:* Physics 1.

ASSOCIATE PROFESSOR KEMP.

12. THE TEACHING OF PHYSICS.—A course for prospective teachers in secondary schools. Discussion of methods of teaching physics, text-books, laboratory manuals, with reports on assigned topics. *Prerequisite:* Physics 1, 2, 3, 5, 8a.

PROFESSOR RIPLEY.

13. RECENT ADVANCES IN PHYSICAL SCIENCE.—Lectures and recitations on the electron theory, conduction of electricity through gases, radio-activity, etc.

PROFESSOR RIPLEY.

## ROMANCE LANGUAGES

PROFESSOR MARINONI, MISS HARGIS.

The courses offered by the department of Romance languages are intended to give students an intimate acquaintance with the languages spoken in the principal Latin countries and to stimulate knowledge and appreciation of the literary attainments of the Latin peoples. In the higher courses emphasis is laid especially on the study of literature, but in order to give students an opportunity to become familiar with the spoken idioms, several of the advanced courses are conducted in the language which forms the object of study.

Major students in the department of Romance languages upon completing the required work, are expected to have a fair speaking knowledge of at least one language. They are therefore urged to take in their second or third year of work the conversation courses offered by the department.

If French is selected as the major study, the student will be required to take the following courses: French 1, 2, 3, 4, 5, 6, 7, and 8.

A student intending to do major work in Romance languages is expected to take French 1, 2, 3, 4, 5, Italian 1 and 2 and Spanish 1, or Spanish 1 and 2 and Italian 1.

## FRENCH

1. ELEMENTARY FRENCH (3)—Grammar, reading, recitation, composition. Pronunciation is carefully taught and oral drill insisted upon. Fraser and Squair's *French Grammar*, Aldrich and Foster's *French Reader*. M. W. F. 1; M. W. F. 2; W. Th. F. 4; M. W. F. 6.

2. FRENCH PROSE AND POETRY (3)—Composition, sight reading, syntax, conversation. Cameron's *French Composition* and reading of representative works of modern French authors. M. W. F. 3; M. W. F. 7.

3. FRENCH CONVERSATION.—There are two meetings of the class during the week, for which one hour credit is given. Open to students who have completed French 1. M. F. 2.

4. FRENCH LITERATURE OF THE SEVENTEENTH CENTURY (3)—The aim of this course is to obtain a general view of the classic

period of French literature. The most important literary productions of the century will be read and analyzed. Considerable outside reading will also be assigned. Lanson's *Histoire de la littérature française* and texts from Delagrave's *Classiques français*. This course is conducted in French. M. W. F. 3.

5. HISTORY OF FRENCH LITERATURE IN THE NINETEENTH CENTURY (3)—Lectures, with reading of the leading authors of the Romantic period. Lanson's *Histoire de la littérature française*. This course will be conducted in French. M. W. F. 6.

6. MODERN FRENCH POETRY (1)—A study of the evolution of French poetry from 1850 to our days. New tendencies in poetry and the reaction against Romanticism as shown in the works of Leconte de Lisle and other Parnassians. Walch's *Anthologie des Poètes français contemporains*.

7. FRENCH DRAMA (1)—The evolution of French Drama from the origins to the present day. Lectures, outside reading, reports. The course is conducted in French.

8. HISTORICAL FRENCH GRAMMAR (1)—The text used will be either Brunot's *Historical French Grammar* or Darmesteter's *Cours de grammaire historique*.

#### ITALIAN

I. ELEMENTARY COURSE (3)—Grammar, composition, dictation, conversation. Marinoni's *Grammar and Reader*. Wilkins and Altrocchi's *Italian Short Stories*. Tu. W. Th. 2.

2. ADVANCED COURSE (3)—Syntax, composition, conversation, reading of representative modern works. Marinoni's *Selections From G. Carducci*; selections from the works of Foscolo, Leopardi, Manzoni. The second term will be devoted to the study of Dante's *Inferno* (Grandgent's edition). M. W. F. 4.

#### SPANISH

I. ELEMENTARY COURSE (3)—Grammar, composition, dictation, conversation. Reading of easy texts. Loiseaux's *Grammar*; Taboada's *Cuentos alegres*, Padre Isla's *Gil Blas*. M. W. F. 5.

2. MODERN SPANISH (3)—Syntax, composition, conversation, reading of representative modern works. The course is conducted largely in Spanish. M. W. F. 7.

## DEPARTMENT OF FINE ARTS ✓

HENRY DOUGHTY TOVEY, *Director and Instructor in Piano, Organ, Theory, and History of Music*

ELIZABETH GALBRAITH, *Instructor in Art*

WILLIE VANDEVENTER-CROCKETT, *Instructor in Expression*

\*MARY CUMMINGS BATEMAN, *Instructor in Vocal Music*

ORIE ABBOTT JENNISON, *Acting Instructor in Vocal Music*

EVELYN METZGER, *Instructor in Art*

MABEL BELL, *Instructor in Piano*

HELEN ADAMS, *Instructor in Piano.*

RAMON ADAMS, *Instructor in Violin*

In the Department of Fine Arts are grouped courses in instrumental music (piano, organ, and violin), vocal music, art, and expression. Special courses in music, art, and elocution, leading to a certificate, are offered. For a statement of the requirements of these courses, see pp. 48, 49. For a statement of the admission requirements, see p. 20. For fees, see pp. 31, 32.

## MUSIC

The courses in music are planned on broad lines, with the view of fitting pupils for careers as teachers and artistic concert performers.

HARMONY 1—Keys, scales, and signatures; simple part writing; chords of the seventh and their inversions; altered and augmented chords; modulation. MR. TOVEY.

HARMONY 2—Modulation continued; suspensions; passing chords; unharmonic notes; organ point; harmonization of melodies; playing of figured bases; double chants, chorals. The textbooks in the courses in Harmony are Emery's *Harmony* and Krebs' *Manual of Modulation* MR. TOVEY.

3. HISTORY OF MUSIC—Music among ancient peoples; early church music; the development of polyphonic music and dramatic music; the development of instrumental music and the evolution of musical instruments. The development of the

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\* Absent on leave, 1912-1913.

opera and oratorio. Modern music and musicians. Text-book: Hamilton's *Outlines of the History of Music..* MR. TOVEY.

4. OPERA STUDY—The librettos and stories of various standard operas are studied. Concerts are given weekly consisting of selections from the operas as embodied in the Victor talking machine's records of great singers, together with piano accompaniments. Upton's *Opera Stories* and the *Victor Book of Opera* are used as text-books.

## PIANO

MR. TOVEY, MISS BELL, MISS ADAMS.

The aims of the courses in piano music are to develop technical control and power of musical conception as adapted to artistic ends.

In general outline the course is as follows:

1. PREPARATORY GRADE—National Graded Course Books I and II; simple exercises for wrist development, major scales, broken chords, and arpeggios. Sonatinas by Diabelli, Clementi, Kuhlau, Lichner; studies from Koehler, Biehl, Loeschorn, Czerny, Gurlitt; salon pieces; preparatory octave work.

2. INTERMEDIATE GRADE—Selected technics from Tausig, Krauss, Heller, Loeschorn, *Op. 66*; Czerny, *Op. 299*; sonatas by Mozart, Haydn, Beethoven; Mendelssohn's *Songs without Words*; Smith's and Low's *Octave Studies*; duets for piano and piano and violin; Bach's *Little Preludes and Fugues*.

3. ADVANCED GRADE—Extended scales in various accents; diminished and dominant seventh arpeggios; etudes from Czerny, *Op. 740*; Heller, *Op. 45*; Cramer; Clementi's *Gradus ad Parnassum*; Kullak's *Octave Studies*; Bach's *Suites, Preludes, Fugues*; Chopin, *Op. 10 and Op. 25*, Valses, Preludes, Nocturnes; Beethoven Sonatas; compositions by Mendelssohn, Schumann, Schubert, Liszt, Grieg, MacDowell, and other modern composers.

4. ACCOMPANIMENT AND ADVANCED PIANO STUDY.

5. TEACHER'S COURSE—Pupils preparing to teach will be given special work.

MR. TOVEY.

## PIPE ORGAN

The aim of the instruction in pipe organ is to fit pupils to hold church positions. A knowledge of organ playing will also be helpful to those who intend to be professional musicians.

I. PIPE ORGAN—The preliminary organ work is based on Ritter's *Organ School* and Thayer's *Pedal Studies*. Then follow Buck's *Studies in Pedal Phrasing*, Bach's *Little Preludes and Fugues*, and selections from composers for the organ, such as Guilmant, Lemare, Tours, Hollins, Rheinberger, and others.

MR. TOVEY.

#### VOICE

The purpose of instruction in this branch of music is the correct production of tone and the building and development of the voice according to the old Italian method. Special stress is laid on breath control, accuracy of tone, distinct articulation, the study of intervals, scale building, sight reading, and phrasing.

In general outline the courses are as follows:

1. PREPARATORY GRADE—Marchesi's *Individual Exercises*; Panofka's *Vocalises*, Op. 85. Studies in sight reading and easy songs.

2. INTERMEDIATE GRADE—Concone, Op. 12, Marchesi's *Individual Exercises*; Panofka's *Vocalises*, Op. 81; Sieber's *Vocalises*, Op. 94; Concone's *Lessons*, Op. 17, and songs of moderate difficulty, including oratorio selections.

3. ADVANCED GRADES—Lamperti's *Studies in Bravura*. Oratorio and opera arias and more difficult songs by English, French, Italian, and German composers.

MRS. BATEMAN.

#### VIOLIN

The instruction in violin music is designed to form correct technique. In outline the courses are:

1. FIRST AND SECOND GRADES—Studies by Dancla and Dont.
2. THIRD AND FOURTH GRADES—Studies by Kayser, Kreutzer, and Schradick.
3. FIFTH AND SIXTH GRADES—Studies by Kreutzer, Fiorillo and Rode.

In addition to the studies, the pupil is given compositions of the standard composers for the violin.

MR. ADAMS.

#### ART, THEORY AND PRACTICE

MISS GALBRAITH, MISS METZGER.

The Academic Course in Art includes the first nine of the courses listed below. The purpose of the academic course is to

develop an appreciation of some of the qualities of works of art and the problems of the artist. The work in the course is conducted after modern methods, and is organized in conformity with regular art school practice.

Course 10 is required in the second year of the normal courses.

The studio is open to students daily from 8 a. m. to 5 p. m.

1. FREE-HAND DRAWING—The principles of perspective; practice in drawing. M. W. F. 1-4. MISS METZGER.

2. LIGHT AND SHADE—Object Drawing. M. W. F. 1-4.  
MISS GALBRAITH.

3. ANTIQUE DRAWING—Study of artistic anatomy. T. Th. I-4.  
MISS GALBRAITH.

4. WATERCOLOR PAINTING—Still life; flowers; landscape.  
M. W. 5-7. MISS GALBRAITH.

5. OIL PAINTING—(a) Figures in costume and portraits.  
(b) Still life; flowers; landscape. T. Th. F. 5-7.  
MISS GALBRAITH.

6. SKETCHING—General practice in pencil and pen sketching.  
Hours to be arranged. MISS METZGER.

7. COMPOSITION—Elements of pictorial composition, and  
practice. Hours to be arranged. MISS GALBRAITH.

8. THE HISTORY OF ART—Hours and work to be assigned.  
MISS GALBRAITH.

9. APPLIED DESIGN—CRAFTS—Four hours per week.  
MISS METZGER.

10. PUBLIC SCHOOL DRAWING—The course includes a critical  
study of the theories and methods of teaching art in the public  
schools. The instruction is conducted upon pedagogic principles.  
Two consecutive hours per week. M. T. Th. F. 5-7.  
MISS METZGER.

#### EXPRESSION.

MRS. CROCKETT.

The courses in expression are designed to be a means of personal culture. They aim to secure naturalness in reading and speaking and freedom from self-consciousness. Attention is given to voice culture and correct articulation.

All courses in expression are year courses; credit in a course is given only when it is continued throughout the year. Course 2 (or course 5) embodies the principles of expression and is prerequisite to the remaining courses. After completing satisfactorily one or the other of these courses, students may register in other courses by permission of the instructor.

The courses given are as follows:

1. READING AND METHODS OF TEACHING READING (1)—This is a course especially adapted to the needs of public school teachers. Required in the first year of the Normal Course. Text-books: Clark's *How to Teach Reading in the Public Schools*; Lyman's *Story Telling*.
2. READING AND SPEAKING (1)—Vocal technique, gesture, dramatic interpretation; interpretation of selections from minor poets of the nineteenth century. Text-books: Chamberlain and Clark's *Principles of Vocal Expression and Literary Interpretation*; Clark's *Hand Book of Best Readings*.
3. PUBLIC SPEAKING (1)—Study of masterpieces of modern oratory; exercises in extemporaneous speaking. Text-books: Clark's and Blanchard's *Practical Public Speaking*; Scott's *Psychology of Public Speaking*.
4. ADVANCED ORATORY AND EXTEMPORE SPEAKING (1)—This course is open only to students who have had some experience in public speaking. Text-book: Phillip's *Effective Speaking*.
5. ADVANCED LITERARY AND DRAMATIC INTERPRETATION (1)—Study of Browning's short poems, Tennyson's poems and of the short story, the novel, the drama. *Open to students who have completed courses 1 and 2.*
6. DRAMATIC INTERPRETATION OF SHAKSPERE'S PLAYS (1)—The plays are studies from the interpretative viewpoint.
7. ARTISTIC RENDERING (1)—In this course the student reads or recites selections prepared by himself for criticism by the class and the instructor.
8. ACTING DRAMA (1)—Students enrolled in this course take part in the public presentation of standard dramas.
9. TEACHER'S COURSE IN EXPRESSION (1)—In this course the methods are for the most part pedagogical, with a view of preparing the student to teach elocution. *Open only to fourth year students in Elocution.*

## PHYSICAL EDUCATION

(For Women)

MISS MILLER.

1. ELEMENTARY CLASS (2)—General gymnastic work; gymnasium games. Lectures on personal hygiene.

2. INTERMEDIATE CLASS (1 to 2)—(a) General gymnastics; continuation of course 1. One period a week. (b) Basket ball; indoor baseball; tennis. One period a week. (c) Ästhetic and folk dancing. One period a week.

2(a) and 2(b) or 2(a) and 2(c) are equivalent to two units of credit. *Prerequisite:* Physical Education 1.

3. ADVANCED GYMNASTICS (2)—A continuation of 2(a). Fencing, field sports and out-of-door games. *Prerequisite:* Physical Education 1.

4. ADVANCED DANCING (2)—*Prerequisite:* Physical Education 2.

5. TEACHER'S CLASS (2)—Theory and practical work, for public school teachers. *Prerequisite:* Physical Education 2.

A physical examination of every student is made at the beginning of each fall term at such intervals as may seem necessary. The work is conducted in the indoor gymnasium and during suitable weather on out-door courts. One unit of credit is given for two hours of work throughout the school year.

## PHYSICAL EDUCATION

(For Men)

PROFESSOR BEZDEK.

The purpose of the work in physical education is to maintain good health, to correct physical defects and to give a familiarity with games, sports and exercises that may be used throughout life.

Physical exercise of some nature is required of all able-bodied men students, either in the form of military exercises or otherwise. Students may take part in football, baseball or track athletics. Instruction in boxing, wrestling and elementary gymnastics is also given. There are also lectures on personal hygiene.

Prospective coaches and teachers in high schools will be given suitable preparation in football, baseball, track athletics, boxing, wrestling, and elementary gymnastics.

# THE COLLEGE OF ENGINEERING

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## FACULTY

JOHN HUGH REYNOLDS, M. A.

*Acting President of the University*

JULIUS JAMES KNOCH, M. S., C. E.

*Professor of Civil Engineering and Chairman of the Faculty*

GEORGE WESLEY DROKE, M. A.

*Professor of Mathematics and Astronomy*

WILLIAM NATHAN GLADSON, M. S., E. E., Ph. D.

*Professor of Electrical Engineering*

BIRTON NEILL WILSON, M. E.

*Professor of Mechanical Engineering*

CHARLES GEIGER CARROLL, M. A., Ph. D.

*Professor of Chemistry*

EDGAR FINLEY SHANNON, M. A., Ph. D.

*Professor of English*

GILES EMMET RIPLEY, M. S.

*Professor of Physics*

NOAH FIELDS DRAKE, C. E., Ph. D.

*Professor of Geology and Mining*

VIRGIL PROCTOR KNOTT, B. C. E.

*Associate Professor of Civil Engineering*

LEE SEDWICK OLNEY, B. E. E.

*Adjunct Professor of Electrical Engineering, Secretary of the Faculty*

ORSON ALLEN CARNAHAN, B. S. M. E.

*Associate Professor of Mechanical Engineering*

WILLIAM BOYD STELZNER, E. E.

*Adjunct Professor of Electrical Engineering*

PHILIP CONRAD HUNTLY, B. C. E.

*Instructor in Civil Engineering*

WILLIAM EDGAR DUCKWORTH

*Instructor in Mechanical Engineering*

HERMAN WAKEMAN DEAN

*Instructor in Mechanical Engineering*

The purpose of the College of Engineering is to prepare young men for the profession of engineering. To this end four-year courses are offered in civil, electrical, mechanical, mining and chemical engineering, each leading to the appropriate bachelor's degree. A fifth year's work leads to a graduate degree.

## ADMISSION

For the admission requirements of the College of Engineering see the general statement of the entrance requirements of the University, pp. 19, 20. For the conditions of admission for special students see p. 30.

## COURSES OF STUDY

Following are statements of the various four-year courses in engineering. The first year is the same in all the courses, with the exception noted below.

## FRESHMAN YEAR

First Semester	Hours Per Week	Second Semester	Hours Per Week
Mathematics 1a, Algebra.....	3	Mathematics 1b, Solid Geometry 3	
Mathematics 2a, Plane Trigonometry .....	3	Mathematics 2b, Analytic Geometry .....	3
English 1, Rhetoric and Composition .....	3	English 1, Rhetoric and Composition .....	3
Physics 1, General Physics.....	3	Physics 1, General Physics.....	3
M. E. 10, Drawing.....	2	M. E. 10, Drawing.....	2
*M. E. 2, 3, Shopwork.....	2	M. E. 2, 3, Shopwork.....	2
Military Science.....	1	Military Science.....	1

\*For M. E. 2, 3, Shopwork, students in the course in Civil Engineering substitute M. E. 11, Lettering.

## COURSE IN CIVIL ENGINEERING FOR THE DEGREE OF B. C. E.

## SOPHOMORE YEAR

First Semester	Hours Per Week	Second Semester	Hours Per Week
Mathematics 4a, Algebra.....	3	Mathematics 4b, Analytic Geometry .....	3
Mathematics 7, Calculus.....	3	Mathematics 7, Calculus.....	3
C. E. 6, 7, Surveying.....	3	C. E. 6, 7, Surveying.....	3
C. E. 3a, Descriptive Geometry 2		C. E. 3b, Descriptive Geometry. 2	
C. E. 5a, Highways.....	2	C. E. 4b, Architectural Drawing 2	
Chemistry 1, Elementary Chemistry .....	3	Chemistry 1, Elementary Chemistry .....	3
Military Science .....	1	Military Science .....	1

## JUNIOR YEAR

<b>First Semester</b>		<b>Second Semester</b>	
	Hours Per Week		Hours Per Week
C. E. 14, Structural Mechanics.	5	C. E. 14, Structural Mechanics.	5
C. E. 10, Railroad Engineering.	2	C. E. 10, Railroad Engineering.	2
C. E. 11, Field Practice.....	2	C. E. 11, Field Practice.....	2
Geology 5b, Blow-pipe Analysis	2	M. E. 27b, Hydraulics .....	2
C. E. 13, Technical Drawing... 2		C. E. 13, Technical Drawing... 2	
Elective .....	3	Elective .....	3
Military Science .....	1	Military Science .....	1

## SENIOR YEAR

<b>First Semester</b>		<b>Second Semester</b>	
	Hours Per Week		Hours Per Week
C. E. 16, Roofs and Bridges... 4		C. E. 16, Roofs and Bridges... 3	
C. E. 15a, Masonry Construc- tion .....	2	C. E. 17, Technical Drawing... 2	
C. E. 17, Technical Drawing... 2		C. E. 18b, Waterworks Engi- neering .....	3
C. E. 18a, Sanitary Engineering 2		C. E. 20b, Field Practice .....	2
C. E. 19a, Engineering Labora- tory .....	2	Elective .....	3
C. E. 20a, Reinforced Concrete. 2		Thesis .....	2
Elective .....	3		

## COURSE IN CHEMICAL ENGINEERING FOR THE DEGREE OF B. CH. E.

## SOPHOMORE YEAR

<b>First Semester</b>		<b>Second Semester</b>	
	Hours Per Week		Hours Per Week
Chemistry 1, Inorganic Chem- istry .....	3	Chemistry 1, Inorganic Chem- istry .....	2
Physics 2, General Physics.... 3		Chemistry 5, Qualitative Analy- sis .....	2
German 1, Elementary German 3		Physics 2, General Physics.... 3	
Math. 4a, Algebra..... 3		German 1, Elementary German. 3	
Math. 7, Calculus..... 4		Math. 4b, Analytic Geometry. 3	
M. E. 14, Machine Design..... 4		Math. 7, Calculus..... 4	
Military Science .....	1	M. E. 14, Machine Design..... 4	
		Military Science .....	1

## JUNIOR YEAR

<b>First Semester</b>		<b>Second Semester</b>	
	Hours Per Week		Hours Per Week
Chemistry 2, Inorganic Chem- istry .....	3	Chemistry 2, Inorganic Chem- istry .....	3
Chemistry 4, Organic Chemistry 3		Chemistry 4, Organic Chemistry 3	
Chemistry 6, Quantitative Analysis .....	3½	Chemistry 6, Quantitative Analysis .....	3½
M. E. 22a, Theoretical Mechani- cs .....	4	M. E. 23b, Mechanics of Ma- terials .....	4
M. E. 12a, Mechanical Drawing 2		M. E. 15b, Machine Design.... 2	
M. E. 24a, Steam Engines and Boilers .....	3	M. E. 25b, Gas Engines and Producers .....	3
Military Science .....	1	Military Science .....	1

## SENIOR YEAR

<b>First Semester</b>	<b>Hours Per Week</b>	<b>Second Semester</b>	<b>Hours Per Week</b>
Chemistry 7, Quantitative Analysis .....	3½	Chemistry 7, Quantitative Analysis .....	3½
Chemistry 11, Physical Chemistry .....	2	Chemistry 11, Physical Chemistry .....	2
Chemistry 15, Chemical Colloquium .....	2	Chemistry 15, Chemical Colloquium .....	2
M. E. 17, Experimental Engineering .....	2	E. E. 1, Electrical Engineering .....	3
E. E. 1, Electrical Engineering .....	3	E. E. 19, Electrical Laboratory .....	2
E. E. 19, Electrical Laboratory .....	2	French 1, Elementary French .....	3
French 1, Elementary French .....	3	Economics 9b, Engineering Law .....	3
Economics 9a, Engineering Law .....	3	Chemistry 18, Journal Meeting Thesis .....	
Chemistry 18, Journal Meeting Thesis .....			

## COURSE IN ELECTRICAL ENGINEERING FOR THE DEGREE OF B. E. E.

## SOPHOMORE YEAR

<b>First Semester</b>	<b>Hours Per Week</b>	<b>Second Semester</b>	<b>Hours Per Week</b>
Mathematics 4a, Algebra .....	3	Mathematics 4b, Analytic Geometry .....	3
Mathematics 7, Calculus .....	3	Mathematics 7, Calculus .....	3
Physics 2, General Physics .....	3	Physics 2, General Physics .....	3
Physics 3, Physical Laboratory 1		Physics 3, Physical Laboratory 1	
Chemistry 1, Inorganic Chemistry .....	3	Chemistry 1, Inorganic Chemistry .....	2
E. E. 2a, Drawing .....	2	Chemistry 5, Qualitative Analysis .....	1
E. E. 20, Illuminating Engineering, or E. E. 11, Telegraphy, Telephony and Signals .....	2	E. E. 20, Illuminating Engineering, or E. E. 11, Telegraphy, Telephony and Signals .....	2
Military Science .....	1	Military Science .....	1

## JUNIOR YEAR

<b>First Semester</b>	<b>Hours Per Week</b>	<b>Second Semester</b>	<b>Hours Per Week</b>
English 13, English Composition, or German 1, Elementary German, or French 1, Elementary French, or Spanish 1, Elementary Spanish .....	3	English 13, English Composition, or German 1, Elementary German, or French 1, Elementary French, or Spanish 1, Elementary Spanish .....	3
M. E. 24a, Steam Machinery .....	3	M. E. 24b, Oil and Gas Machinery .....	3
Physics 4, Mechanics, or C. E. 14, Structural Mechanics, or M. E. 22a, Theoretical Mechanics .....	4	Physics 4, Mechanics, or C. E. 14, Structural Mechanics, or M. E. 23b, Mechanics of Materials .....	4
E. E. 7, Dynamo Machinery .....	3	E. E. 7, Dynamo Machinery .....	3
E. E. 5, Electrical Laboratory .....	2	E. E. 5, Electrical Laboratory .....	2
E. E. 3, Electrical Design .....	2	E. E. 3, Electrical Design .....	2
Military Science .....	1	Military Science .....	1

## UNIVERSITY OF ARKANSAS

## SENIOR YEAR

## First Semester

	Hours Per Week
E. E. 8a, Alternating Currents.	3
E. E. 6, Electrical Laboratory.	2
E. E. 4, Electrical Design.....	2
M. E. 17, Experimental Engi- neering .....	2
Elective:	
E. E. 13a, Power Stations.....	2
E. E. 15a, Alternating Current Motors .....	2
Economics 9a, Engineering Law	3
E. E. 12a, Telephone Labora- tory .....	1

## Second Semester

	Hours Per Week
E. E. 9b, Polyphase Currents..	3
E. E. 6, Electrical Laboratory.	2
E. E. 4, Electrical Design.....	2
M. E. 17, Experimental Engi- neering .....	2
Elective:	
E. E. 14b, Electrical Transmis- sion .....	2
E. E. 16b, Hydro-Electric De- velopments .....	2
Economics 9b, Engineering Law	3
E. E. 4b, Photometry.....	2
C. E. 8b, Surveying.....	3
E. E. 10b, Electric Railways... 3	

Of the electives, enough must be selected to make the total 16 hours a week.

## COURSE IN MECHANICAL ENGINEERING FOR THE DEGREE OF B. M. E.

## SOPHOMORE YEAR

## First Semester

	Hours Per Week
Mathematics 4a, Algebra.....	3
Mathematics 7, Calculus.....	3
Chemistry 1, Inorganic Chemis- try .....	3
C. E. 3a, Descriptive Geometry	2
M. E. 4 and 5, Forge and Ma- chine Shop .....	2
M. E. 14, Machine Design.....	4
Elective.....	5
Military Science.....	1

## Second Semester

	Hours Per Week
Mathematics 4b, Analytic Geom- etry .....	3
Mathematics 7, Calculus.....	3
Chemistry 1, Inorganic Chem- istry .....	2
Chemistry 5, Qualitative Analy- sis .....	1
M. E. 4 and 5, Forge and Ma- chine Shop .....	2
M. E. 14, Machine Design.....	4
C. E. 8b, Surveying.....	2
Military Science.....	1

## JUNIOR YEAR

## First Semester

	Hours Per Week
M. E. 22a, Theoretical Mechani- cs .....	4
M. E. 24a, Steam Engines and Boilers .....	3
M. E. 17, Experimental Engi- neering .....	2
M. E. 12a, Mechanical Drawing	2
Elective .....	5
Military Science .....	1

## Second Semester

	Hours Per Week
M. E. 23b, Mechanics of Ma- terials .....	4
M. E. 25b, Gas Engines and Producers .....	3
M. E. 17, Experimental Engi- neering .....	2
M. E. 15b, Machine Design.....	4
M. E. 27b, Hydraulics.....	2
Elective .....	1
Military Science .....	1

## SENIOR YEAR

## First Semester

	Hours Per Week
E. E. 19, Electrical Laboratory	2
E. E. 1, Electrical Engineering	3
M. E. 26, Machine Design .....	4
M. E. 18, Experimental Engin- eering .....	2
M. E. 28a, Hydraulic Machin- ery .....	2
Elective .....	3

## Second Semester

	Hours Per Week
E. E. 19, Electrical Laboratory	2
E. E. 1, Electrical Engineering	3
M. E. 26, Machine Design .....	4
M. E. 18, Experimental Engin- eering .....	2
Elective .....	5
Thesis .....	

## COURSE IN MINING ENGINEERING FOR THE DEGREE OF B. M. E.

## SOPHOMORE YEAR

First Semester	Hours Per Week	Second Semester	Hours Per Week
Chemistry 1, General Chemistry	3	Chemistry 1, General Chemistry	
Mathematics 4a, Algebra.....	3	and Chemistry 5, Qualitative	
Mathematics 7, Calculus.....	3	Analysis .....	4
Geology 1a, Geography.....	3	Mathematics 4b, Analytic Geom-	
Geology 5a, Crystallography..	3	etry .....	3
Foreign Language.....	3	Mathematics 7, Calculus.....	3
Military Science .....	1	Geology 1b, Dynamic and Struc-	
		tural Geology .....	3
		Geology 5b, Mineralogy.....	3
		Foreign Language.....	3
		Military Science.....	1

## JUNIOR YEAR

First Semester	Hours Per Week	Second Semester	Hours Per Week
Chemistry 6, Quantitative Analy-		Chemistry 6, Quantitative Analy-	
sis .....	3	sis .....	3
Geology 2, Historical Geology..	3	Geology 2, Historical Geology..	3
Geology 6a, Economic Geology..	3	Mining 1b, Mining Operations..	3
C. E. 6 and 7, Surveying.....	3	C. E. 6 and 7, Surveying.....	3
E. E. 1, Electrical Engineering	3	E. E. 1, Electrical Engineering	3
Foreign Language.....	3	Foreign Language.....	3
Military Science.....	1	Military Science.....	1

## SENIOR YEAR

First Semester	Hours Per Week	Second Semester	Hours Per Week
Geology 7, Petrology.....	3	Geology 7, Petrology.....	3
Mining 2a, Ore Dressing.....	3	Metallurgy 1b, General Metal-	
C. E. 3, Descriptive Geometry. 2		lurgy .....	2
C. E. 15a, Masonry Construc-		Metallurgy 2b, Assaying.....	1
tion .....	2	C. E. 3b, Descriptive Geometry	2
Chemistry 7, Quantitative Analy-		M. E. 27b, Hydraulics.....	2
sis .....	2	Foreign Language.....	3
Foreign Language.....	3	Elective .....	3
Elective .....	3		

## REQUIREMENTS FOR THE GRADUATE DEGREES IN ENGINEERING

The degrees of C. E., E. E., M. E., and Ch. E. may be conferred on students who follow the corresponding undergraduate courses with a year of graduate work in the College of Engineering.

The graduate courses will comprise a principal subject, based on the undergraduate course already pursued, and two subordinate subjects, one or both of which must be closely related to the principal subject. The graduate course must amount to not less than fifteen hours per week as counted in undergraduate

work. Candidates for these degrees must also present a satisfactory thesis.

These degrees will also be given to graduates of the University in civil, electrical, mechanical, and chemical engineering who have been in successful practice of their profession for three years, and who present a statement of their work, together with a satisfactory thesis.

#### COURSE IN MECHANIC ARTS.

The two-year course in mechanic arts is designed to meet the wants of young men who lack the necessary preparation for admission to the regular courses leading to a degree or are not able to spend the time required for the completion of a regular course.

The purpose of the course is to prepare young men to hold responsible positions requiring the intelligent operation of machinery.

In the course special attention is given to instruction in shop-work and drawing. In the second year of the course the instruction is of such nature as to give an elementary knowledge of mechanics, machine design, and steam machinery that will enable the student intelligently to use and care for machinery.

The completion of the course in mechanic arts is attested by a certificate from the University.

#### ENTRANCE REQUIREMENTS FOR THE COURSE IN MECHANIC ARTS

Students who enter the course must be eighteen years of age. They must have completed a common school course of study.

It is also desirable that the student shall have had work in elementary algebra and plane geometry.

#### COURSE FOR CERTIFICATE IN MECHANIC ARTS.

##### FIRST YEAR

###### First Semester

Hours  
Per Week

Mathematics 1a, 2a.....	6
M. E. 11, Mechanical Drawing. ....	3
M. E. 21, Shop Mechanics.....	3
M. E. 16, Operation of Power Plant Equipment.....	2
Shop Work .....	3
Military Science.....	1

###### Second Semester

Hours  
Per Week

Mathematics 1b, 2b.....	6
M. E. 11, Mechanical Drawing. ....	2
M. E. 21, Shop Mechanics.....	3
M. E. 16, Operation of Power Plant Equipment .....	2
Shop Work .....	3
Military Science.....	1

## SECOND YEAR

First Semester	Hours Per Week	Second Semester	Hours Per Week
M. E. 14, Machine Design.....	3	M. E. 14, Machine Design .....	3
M. E. 20, Steam Engines and Boilers .....	3	Boilers .....	3
M. E. 17, Experimental Engin- eering .....	2	M. E. 17, Experimental Engin- eering .....	2
E. E. 19, Electrical Engineering	3	E. E. 19, Electrical Laboratory	2
E. E. 1, Electrical Laboratory.	2	E. E. 1, Electrical Engineering	3
Shop Work.....	3	Shop Work.....	3
Military Science.....	1	Military Science.....	1

## EQUIPMENT

*Civil Engineering Laboratory and Equipment.* The instrument laboratory for this department is located on the first floor of Engineering Hall, and is provided with all the necessary instruments for work in land, railroad, and city surveying and office work. The equipment of the field instruments has been so selected as to afford students the opportunity of becoming familiar with the instruments of the different manufacturers. Among the instruments there are a number of engineers' transits and Y levels, theodolites, transit and solar attachment, compasses, hand levels, standard and ordinary steel tapes, plane tables, sextant, aneroid, and mercurial barometers, etc. An equipment for practical astronomy has been added, consisting of a large altazimuth, reading to seconds by levels and micrometers; a sidereal clock with break-circuit attachment; and a chronograph reading to tenths of seconds.

The laboratory for testing materials of construction and for work in experimental hydraulics is located in the northwest corner of the basement of Engineering Hall. It is a well-lighted room having a floor space of 2,450 square feet.

The equipment for testing the quality and strength of cements and mortars includes one 2,000-pound tension machine, one 1,000-pound automatic machine, brass molds for tension, compression, and transverse test pieces, storage tanks and apparatus for testing fineness, specific gravity and activity, and for accelerated tests.

For steel testing the laboratory contains a 4,000-pound tension machine and a 5,000-pound transverse machine for tests on bars, and a Fremont impact testing machine. Special apparatus has been provided for testing paving brick and road material.

The equipment for experiments in hydraulics consists of a

Pelton water wheel, a hydraulic engine, water meters, weirs and other apparatus.

The laboratory is also well equipped for making blue and brown prints of any size up to 36x64 inches.

*Electrical Engineering Laboratories.* The dynamo laboratory affords excellent facilities for experimental work with practical machinery. It is located in the east end of the basement of the Engineering Hall.

The power is supplied by a 30-horsepower, vertical type, double cylinder gasoline engine, and a 20 K. W. induction motor. A 60-cell, 300 ampere-hour storage battery supplies current for experiments in which absolutely steady power is desired.

There are direct current dynamos and motors of the constant current and constant potential types, transformers, converters, synchronous and induction motors, with a liberal supply of measuring instruments for use with the various machines. Single, two and three-phase alternators supply current at various voltages and frequencies.

The senior laboratory is located on the first floor of Engineering Hall, and is supplied with direct current at 110, 220 and 500 volts, and alternating current, single phase, at 50, 110 or 220 volts and 60 cycles; two phase, 60 cycle at 110 or 220 volts; three phase at 110 or 220 volts, with a frequency of 60 to 113 cycles per second. A high tension testing transformer supplies current at any voltage up to 120,000 volts for testing of insulators, while standard cells, a Kelvin balance and a potentiometer furnish means for calibrating the laboratory measuring instruments.

Students are also permitted to inspect the plant of the Fayetteville Electric Light & Power Company, take measurements and make tests on it. Its primary mains supply the electrical laboratory with alternate current at 60 cycles and 2,000 volts.

The photometric laboratory, which also serves as a photographic and X-ray dark room, is supplied with a standard photometer bar, Lummer-Brodhun screen and Amylacetate standard lamp.

*Mechanical Engineering Laboratory.* The laboratory contains the following machinery: One 35-horsepower compound automatic steam engine, one Hornsby-Akroid oil engine, one Kerr steam turbine, one side valve steam engine, one 10-horsepower

Weber gasoline engine, one 35-horsepower Westinghouse compound steam engine, one  $4\frac{1}{2} \times 3\frac{1}{2} \times 4$  duplex steam pump, one 50-horsepower Wheeler condenser with air, water, and circulating pumps, one Pulsometer steam pump, one Westinghouse air compressor, and one 60,000-pound Rheile testing machine, for testing materials in tension and compression, such as wood, steel, and cast iron. This machine is also equipped for testing large beams of steel, concrete, or timber.

The laboratory is well provided with apparatus for experimental work, including a Mahler bomb calorimeter for testing fuels, an Orsat apparatus for flue gas analysis, a Junker calorimeter, an Olsen oil testing machine, a viscosimeter, a flash point tester, steam calorimeters, engine indicators, injectors, thermometers, pressure gauges, measuring tanks, feed water heater, water meters, scales, etc.

The steam boilers used for heating the University buildings are arranged so as to be available for experimental work, and the Corliss shop engine is also used for purposes of instruction.

By special arrangement with the Fayetteville Water Company, and the City Electric Light and Power Company, students are allowed to run tests on these plants.

*Mechanical Hall.* Mechanical Hall is built of brick, is forty feet wide and one hundred and fifty-five feet in length, with an ell thirty-five by forty feet, and contains the machine shop, wood shop, foundry, and forge shop. The shops will accommodate about seventy-five students at one time. Adjoining on the east is a boiler room fifty-three by fifty-four feet.

The machine shop contains a large iron planer, a shaper, and a Corliss engine, which runs the machinery in the whole building.

## DESCRIPTION OF COURSES OFFERED IN THE COLLEGE OF ENGINEERING

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Courses designated by a numeral followed by the letter *a* are given during the first semester.

Courses designated by a numeral followed by the letter *b* are given during the second semester.

Courses designated by a numeral alone are continued through both semesters. Credit for one semester's work in such courses will not be granted.

The number in parenthesis after the name of a course indicates the number of hours of credit given for completion of the course.

### CIVIL ENGINEERING

PROFESSOR KNOCH, ASSOCIATE PROFESSOR KNOTT, MR. HUNTRY.

The course in engineering, leading to the B. C. E. degree, is outlined on p. 89.

The courses in civil engineering include theoretical instruction accompanied by illustrations and as much of engineering practice as possible. The courses will give the student a knowledge of fundamental principles that will enable him to enter intelligently upon professional practice.

The special technical studies which are offered may be grouped under the heads of surveying, applied mechanics, road and railroad engineering, hydraulic engineering, bridge engineering, and sanitary engineering.

The work in surveying extends over three years. It embraces land surveying, leveling and United States public land surveys, during the sophomore year; topography, railroad reconnaissance and location, during the junior year; triangulation and geodesy, during the senior year. Much time is devoted to practice in the field and drafting room, this work being carried on parallel with the class-room work. Each year a party of engineering students goes into camp one week for practice in surveying and locating railway lines.

3a and 3b. DESCRIPTIVE GEOMETRY (2)—Recitation and practice, first and second terms. Text-book: Church's *Descriptive Geometry*. Th. 1, M. 5-7.

PROFESSOR KNOCH.

MR. HUNTRY.

4b. ARCHITECTURAL DRAWING (2)—Elementary course in architecture; drawing plans and elevations of simple structures; analysis of plans. T. W. 5-7.

MR. HUNTRY.

5a. HIGHWAYS (2)—The location, construction, and maintenance of common, Macadam and Telford roads; brick, stone, wood, asphalt and bituminous pavements for city streets. Text-book: Baker's *Roads and Pavements*. Engineering Hall. T. Th. 2.

MR. HUNTRY.

6. SURVEYING (with 7) (3)—First and part of second semester. Care, use, and adjustment of instruments; use of chain, tape, compass, transit, solar attachment, level, sextant, plane-table; land surveying, contouring, laws and instructions relating to the surveys of the public domain. T. F. 2.

ASSOCIATE PROFESSOR KNOTT.

MR. HUNTRY.

7. FIELD PRACTICE (1)—Exercises in land, topographical, and city surveying. One afternoon per week throughout the year. Th. 5-8.

MR. HUNTRY.

8b. SURVEYING (3)—Care, use, and adjustments of instruments; platting field notes. Running grade lines and simple curves for electric railways. Recitation one hour and field practice two hours per week. *Elective for E. E. students.* *Prerequisite:* Plane Trigonometry.

ASSOCIATE PROFESSOR KNOTT.

MR. HUNTRY.

9b. SURVEYING (1)—Leveling, land surveying, and land drainage. Required of students in the B. S. A. course. Engineering Hall. T. F. 3, W. 5-8.

MR. HUNTRY.

10. RAILROAD ENGINEERING (2)—Preliminary surveys and location; transition curves, yards and turnouts; estimate of earth-work and materials used in construction; the economics of railroad location and management. Text-books: Searles' *Field Engineering* and Crandall's *Transition Curve and Earthwork Computations*, first semester; second semester, Raymond's *Railroad Engineering*, Part II. T. Th. 3.

PROFESSOR KNOCH.

11. FIELD PRACTICE (2)—Location of curves, turnouts, and Y's; measurements of embankments and cuts, and computation of volumes. One afternoon per week throughout the year.  
F. 5-8.

PROFESSOR KNOCH.

12. RAILROAD SURVEY.—One week, twelve hours per day. Actual field practice in reconnaissance, preliminary survey, location, and topographical survey.

13. DRAWING (2)—Lectures and practice. Shades, shadows, and perspective. Topographical and railroad maps from actual surveys; masonry dams, structural details, and working drawings for designs. M. Tu. 5-7.

ASSOCIATE PROFESSOR KNOTT.

14. STRUCTURAL MECHANICS (5)—A course especially designed for students in civil engineering. The theory of stresses and strains, with practical applications to the design of structures. Text-book: Church's *Mechanics of Engineering*.

ASSOCIATE PROFESSOR KNOTT.

15a. MASONRY CONSTRUCTION (2)—Use of lime and hydraulic cement mortars; stone and brick masonry; concrete; foundations on land and under water; coffer-dams, cribs and caissons. Text-book: Baker's *Masonry Construction*. M. W. 3.

ASSOCIATE PROFESSOR KNOTT.

16. ROOFS AND BRIDGES (4 and 3)—Theory of computation of stresses by both analytical and graphical methods; full computations, designs, and bills of materials for roof truss and railroad bridge. Text-books: Merriman and Jacoby's *Roofs and Bridges*, Parts I, II, and III. M. Tu. W. F. 1. PROFESSOR KNOCH.

17. TECHNICAL DRAWING (2)—Lectures and practice four hours per week throughout the year. Right and oblique arches; drawings for computations of course 16. T. W. 5-7.

PROFESSOR KNOCH.

18a. SANITARY ENGINEERING (2)—Calculation and special details of construction of sewers; separate and combined systems of sewers; purification of sewage; municipal and domestic sanitation. Text-book: Folwell's *The Designing, Construction, and Maintenance of Sewerage Systems*. PROFESSOR KNOCH.

18b. WATERWORKS ENGINEERING (3)—A study of systems of water supply; collection, purification and distribution of water; location of waterworks, with details of construction and cost es-

timate; turbines and pumping engines. Text-book: Folwell's *The Designing, Construction, and Maintenance of Water-Supply Systems.*

PROFESSOR KNOCH.

19a. ENGINEERING LABORATORY (2)—Tests of strength and other properties of materials of construction, tensile and crushing tests of brick, stone, and cement; flow of water through pipes, elbows, valves, and measurement of water by means of weirs and meters. F. 5-8.

MR. HUNTRY.

20a. REINFORCED CONCRETE (2)—Recitations, lectures, and practical problems on the theory and design of various structures in reinforced concrete. Th. 5-8.

ASSOCIATE PROFESSOR KNOTT.

20b. FIELD PRACTICE (2)—Topographical survey, triangulation, precise leveling, and practical astronomy. Th. 5-8.

ASSOCIATE PROFESSOR KNOTT.

21. CONTRACTS AND SPECIFICATIONS (3)—Elective for seniors in Engineering. Lectures and recitations. Text-books: Johnson's *Contracts and Specifications*; Wait's *Architectural and Engineering Jurisprudence.*

PROFESSOR KNOCH.

## ELECTRICAL ENGINEERING

PROFESSOR GLADSON, ASSOCIATE PROFESSOR OLNEY, ADJUNCT  
PROFESSOR STELZNER.

The course in engineering leading to the B. E. E. degree is outlined on p. 91.

In the courses in electrical engineering general and technical subjects are combined in such proportions as to furnish a good foundation for the profession of electrical engineering. Sufficient theory is taught in the class-room and illustrated by laboratory experiments to give the student a knowledge of the underlying principles. Shop experience with manufacturing companies, to give the student specific practical training, is desirable. Such training should be gotten during vacations and after graduation.

I. ELECTRICAL ENGINEERING (3)—Recitations and demonstrations. A general elementary course in electrical machinery, dynamos, motors, transformers, electric signals, mine haulage, and illumination. This course may be elected for one-half year. Re-

quired of mining and mechanical engineering students. Elective in other courses. Prerequisite: Physics 1. M. W. F. 3.

ADJUNCT PROFESSOR STELZNER.

2a. DRAWING (2)—Recitations and practice four hours a week. Accurate mechanical drawings from electrical machinery; architectural drawings and wiring plans, perspective-line shading; orthographic projections. Th. F. 5, 6, and 7.

ASSOCIATE PROFESSOR OLNEY.

3. ELECTRICAL ENGINEERING DESIGN (2)—Recitations and practice four hours a week. Working drawings of electrical machinery; design of direct current machinery; specifications and estimates. M. 5-7, W. 5. ASSOCIATE PROFESSOR OLNEY.

4. ELECTRICAL ENGINEERING DESIGN (2)—Recitations and drawing, four hours a week. Design of alternating current machinery; motors, transformers and generators. Prerequisite: E. E. 3. Tu. 5-7, W. 6. ASSOCIATE PROFESSOR OLNEY.

4b. PHOTOMETRY OF ELECTRIC LAMPS (2)—Lectures, recitations and laboratory work. Prerequisite: Physics 1 and 2, E. E. 7, 5, and 3. M. Tu. 5, 6, 7. PROFESSOR GLADSON.

5. ELECTRICAL LABORATORY (2)—One afternoon a week throughout the year. An extended course in magnetic and electrical measurements; current strength, electro-motive force and resistance; use and calibration of instruments; explorations of magnetic fields; testing of direct current dynamos and motors. Tu. F. 5-8. ADJUNCT PROFESSOR STELZNER.

6. ELECTRICAL LABORATORY (2)—One afternoon a week throughout the year. A full experimental course in operating and testing direct and alternating current machines; transmission, storage and transformation of electric energy. Special exercises suited to the preparation and object of the student. M. Th. 5-8. ADJUNCT PROFESSOR STELZNER.

7. DYNAMO-ELECTRIC MACHINERY (3)—Recitations confined chiefly to direct current apparatus, including types of motors, generators, and transformers; designs, calculations, construction, testing and operating. Text-book: Sheldon and Hausmann's *Dynamo-Electric Machinery*. M. W. F. 2. Prerequisite: Physics 1 and 2. PROFESSOR GLADSON.

8a. THEORY OF ALTERNATING CURRENTS (3)—Text-book: Sheldon and Hausmann's *Alternating Current Machines*. M. W. F. 1. PROFESSOR GLADSON.

9b. POLYPHASE ELECTRIC CURRENTS (3)—Recitations and lectures three hours a week. Text-book: Sheldon and Hausmann's *Alternating Current Machines*. Reference books: *Alternating Current Motors*, McAlester; *Alternating Current Phenomena*, Steinmetz; *Vectors and Vector Diagrams*, W. Cramp and C. F. Smith; technical journals. M. W. F. I. PROFESSOR GLADSON.

10b. ELECTRIC RAILWAYS (2)—Recitations and lectures twice a week. Reference books: *Electric Railway Engineering*, Parshall and Hobart; International Correspondence School Pamphlets. Tu. Th. 2. ADJUNCT PROFESSOR STELZNER.

II. TELEPHONY, TELEGRAPHY, RAILWAY SIGNALS, FIRE ALARMS AND RELATED APPARATUS (2)—Recitations. Text-books: McKeen and Miller's *Telephony*, Maver's *American Telegraphy*. Tu. Th. 4. Prerequisite: Physics I.

ASSOCIATE PROFESSOR OLNEY.

12a. TELEPHONE LABORATORY (1)—Work with the telephone, telegraph, wireless telegraphy and telephony, railway signals and allied apparatus. F. 3-4. ASSOCIATE PROFESSOR OLNEY.

13a. POWER STATIONS (2)—Lectures and recitations. Selection of machinery for power stations; steam, hydraulic, gas and electric, station construction, operation and management. Tu. Th. 3. PROFESSOR GLADSON.

14b. ELECTRIC TRANSMISSION AND DISTRIBUTION (2)—Recitations and lectures. A study of the different methods of electrical power distribution for light, railway or stationary power; long distance transmission. M. Tu. 3. PROFESSOR GLADSON.

15b. ALTERNATING CURRENT MOTORS (2)—Lectures and recitations. *This course must be preceded by courses E. E. 7 and E. E. 8a.* PROFESSOR GLADSON.

16b. HYDRO-ELECTRIC DEVELOPMENTS (2)—Lectures and recitations. A study of the methods of investigating power possibilities of flowing water, collecting data, selecting power sites, power house, transmission lines and machinery. Prerequisite: E. E. 7 and E. E. 8a. PROFESSOR GLADSON.

17. ELECTRICAL ENGINEERING SEMINAR.—Students who attend and take part in 75 per cent of the meetings of the University Branch of the *American Institute of Electrical Engineers* during their Junior and Senior years, and prepare and present an accept-

able original paper on some engineering subject will be given one hour's credit.

18. HISTORY OF ENGINEERING—The early development of engineering, as traced from history and from the remains of ancient works; development of engineering in later periods and its growth into a separate profession; the effect on civilization, general history and economic problems of the several inventions and other improvements which have marked the development of engineering; study of lives of some famous engineers; also the development of the general technical principles of engineering.

ADJUNCT PROFESSOR STELZNER.

19. ELEMENTARY ELECTRICAL LABORATORY (2)—One afternoon a week. This course is intended to illustrate the application of electrical machinery for power purposes and includes simple testing, operating and care of direct and alternating current machinery. *Required of M. E. students.*

ADJUNCT PROFESSOR STELZNER.

20. ILLUMINATING ENGINEERING (2)—Recitations and lectures on the different methods of artificial illumination, sources, intensity and distribution of light; physiological problems involved.

ASSOCIATE PROFESSOR OLNEY.

INSPECTION TRIP—Once each year visits of inspection are made by the Senior class to power houses and large electrical installations; or a week is spent in actual practice work in determining the hydro-electric possibilities of some stream.

## MECHANICAL ENGINEERING

PROFESSOR WILSON, ASSOCIATE PROFESSOR CARNAHAN, MR. DEAN,  
MR. DUCKWORTH, MR. CRIPPIN.

The course in engineering leading to the B. M. E. degree is outlined on p. 92.

The courses in mechanical engineering give instruction in mechanics, machine design, the theory of steam and gas engines, hydraulic machinery, railroad engineering, etc., and provide suitable preparation for the management of processes or plants where machinery is used extensively. In practical application of theory, much time is devoted to shop work, drawing, and laboratory practice.

The courses in this department that can be profitably pursued without advanced mathematics are the shop and manual training courses from 1 to 9 inclusive, the drawing and lettering courses from 10 to 13 inclusive, courses in the elementary theory of steam and gas engines, and their operation, M. E. 16, 20, 21, heating and ventilation, M. E. 30, and the course in efficiency, M. E. 33b.

1a. SHOP WORK, CARPENTRY—A course in carpentry and joinery laid out to meet the requirements of students in agriculture. M. 5, 6, 7. MR. DUCKWORTH.

2. FOUNDING—Green sand moulding; melting and pouring brass and iron; core making. This work is made as practical as possible. M. Tu. Th. F. 1-7; W. S. 1-4. MR. DUCKWORTH.

3. PATTERN-MAKING—Practice in making patterns. Care and use of wood working machinery. M. Tu. Th. F. 1-7. MR. DUCKWORTH.

4. FORGING—Management of fires; drawing and welding; riveting and tempering; case hardening and annealing. M. Tu. Th. F. 1-7; W. S. 1-4. MR. DUCKWORTH.

5. MACHINE SHOP PRACTICE—Exercises in chipping and filing; practical work in turning; planing, drilling; grinding; use of milling machine; erection of machinery. M. Tu. Th. F. 1-7; W. S. 1-4. MR. DEAN.

6. MANUAL TRAINING (1-2)—A beginner's course in manual training, suitable for teachers intending to teach manual training in the primary grades, and to familiarize themselves with the use of tools. This course is made up of work in paper cutting, folding and pasting, book binding, and sloyd. M. Tu. Sat. 1, 2, 3. MR. DUCKWORTH.

7. MANUAL TRAINING (1-2)—A continuation of M. E. 6 with exercises in wood carving, turning, and elementary cabinet making. M. Tu. Sat. 1, 2, 3. MR. DUCKWORTH.

8. MANUAL TRAINING (1-2)—A course arranged for advanced teachers in wood work. Thin wood construction, thick wood construction, joining and cabinet work, wood finishing. M. Tu. Sat. 1, 2, 3. MR. DUCKWORTH.

9. ADVANCED WORK in any of the above courses.

MR. DUCKWORTH.

MR. DEAN.

10. DRAWING (2)—Lettering, free hand drawing; copying machine drawings; working drawings from machine parts; tracing; blue printing. M. Tu. Th. F. 5-7.

11. LETTERING (1-2)—Titles for maps and drawings, pen and colored topography. M. W. F. 1-3. *Required of C. E. Freshmen; elective for other engineering and art students.*

12a. MECHANICAL DRAWING (2)—Perspective and isometric drawings; intersections; developments; detail drawing; blue printing. M. Tu. W. Th. F. 5-7.

13. ARCHITECTURAL DRAWING (2)—Conventional methods of representing different materials of construction; standard details of buildings; plans; elevations; sections; working drawings; tracing. M. T. Th. F. 5-7.

14. MACHINE DESIGN (4)—Kinematics of machinery; design of gear teeth; link motions, cams, etc. Two hours' recitation and six hours' drawing per week. Tu. W. 3; Tu. F. 5-7.

ASSOCIATE PROFESSOR CARNAHAN.

15b. MACHINE DESIGN (4)—A study of empirical methods of design, and the application of the principles of mechanics to the design of machine elements. Recitation Th. F. 3; drawing Tu. F. 5-7.

ASSOCIATE PROFESSOR CARNAHAN.

ASSOCIATE PROFESSOR CARNAHAN.

16. OPERATION OF POWER PLANT EQUIPMENT (2)—The actual operation of steam, gas and oil engines, boilers, pumps, condensers, and the repairing of same. Six hours' work per week are required in this course for two hours' credit. *Elective for M. E. short course students.* M. Tu. 5-7; Sat. 1-3.

MR. CRIPPIN.

17. EXPERIMENTAL ENGINEERING (2)—Calibration of engineering instruments; indicators, steam gauges, planimeters, nozzles, meters, weirs, etc., valve setting, steam engines, gas engines and boiler tests. Text-book: Carpenter's *Experimental Engineering*. Four hours' laboratory work per week. M. or Th. 5-7.

ASSOCIATE PROFESSOR CARNAHAN.

18. EXPERIMENTAL ENGINEERING (2)—Use of Mahler bomb calorimeter in determining heat value of coal and oil; flue gas analysis; comparative tests of different types of steam engines, boilers, pumps, gas engines, oil engines, turbines; special investigations. F. 5-8.

19. EXPERIMENTAL ENGINEERING (2)—An advanced course in laboratory investigation for students desiring to take up a definite line of experiments related to some line of study in this department. The experiments and tests will be arranged to suit the needs of small sections.

PROFESSOR WILSON.

20. STEAM ENGINES AND BOILERS (3)—Elementary theory of steam and gas engines, boilers; care and management of same; valve gears. *For M. E. short course and B. S. A. students.* M. W. F. 4.

21. SHOP MECHANICS—An elementary course in mechanics and hydraulics. Tu. Th. 4. *Required of short course M. E. students.*

22a. THEORETICAL MECHANICS (4)—Statics and Dynamics. Mathematical discussions of force, inertia, energy, etc. Text-book: Wright's *Mechanics*. M. Tu. W. Th. 2. *Prerequisite:* Mathematics 4a, 4b, and 7.

ASSOCIATE PROFESSOR CARNAHAN.

23b. MECHANICS OF MATERIALS (4)—The materials of construction, timber, stone, iron, steel, cement, brick, etc., are studied. The formulae for the figuring of strength of beams, columns, shafting, etc., are developed. Numerous applications of the formula to practical problems are made. Text-book: Merriman's *Mechanics of Materials*. M. Tu. W. Th. 2. *Prerequisite:* Mathematics 4a, 4b and 7.

ASSOCIATE PROFESSOR CARNAHAN.

24a. STEAM ENGINES AND BOILERS (3)—Elementary thermodynamics; theoretical heat engines; valve gears; comparison of types of steam engines, boilers, and feed water pumps; use of feed water heater, condensers, etc. M. W. F. 4.

PROFESSOR WILSON.

25b. GAS ENGINES AND PRODUCERS (3)—Development and theory of different types of gas and oil engines; suction and pressure producers; cost of gas and steam power compared. Text-book: Carpenter and Deaderich's *Internal Combustion Engines*. M. W. F. 4.

PROFESSOR WILSON.

26. MACHINE DESIGN (4)—Theory of steam and gas engines; problems in steam and gas engines and boiler design. Two recitations, six periods of drawing. *Prerequisite:* M. E. 14. Tu. 1, F. 2, M. Th. 5-7.

PROFESSOR WILSON.

27b. HYDRAULICS (2)—Hydraulics and Hydrostatics. Text-book: Merriman's *Treatise on Hydraulics*. Tu. Th. 4.

ASSOCIATE PROFESSOR CARNAHAN.

28a. HYDRAULIC MACHINERY (2)—A study of the design, construction, and operation of turbines and pumping machinery. Text-book: Merriman's *Treatise on Hydraulics*. Tu. Th. 4.

ASSOCIATE PROFESSOR CARNAHAN.

29. METHODS OF ICE-MAKING, COLD STORAGE (2)—Theory of the absorption and compression systems of ice-making; ice-making machinery; cost of making; buildings; insulation of storage rooms.

PROFESSOR WILSON.

30. HEATING AND VENTILATION (3)—The theory of heating and ventilation is studied, including the flow of air and products of combustion in pipes and chimneys. The sources of the impurities in the air are thoroughly gone into. The requirements of good ventilation are considered, and the movement of air for ventilating purposes by fans and other means is compared.

The different systems of heating by furnaces, steam and hot water are studied from the text, working drawings being made by the students of each system of heating, and the merits of each are fully treated; contracts, specifications, bills of material and cost of the different plants are prepared. Two recitations and three hours' drawing per week. Tu. Th. 3, 5, 6, 7.

PROFESSOR WILSON.

31. STEAM ENGINEERING (3)—Mechanical engineering of power plants; selections of machinery for equipment of power stations; plans and specifications. Two recitations and three hours' drawing per week, either one or two semesters. W. F. I, M. or Tu. 5, 6, 7. *Prerequisite:* M. E. 24a.

PROFESSOR WILSON.

32b. RAILROAD ENGINEERING (2)—Design and construction of locomotives; repairs for rolling stock; discussion of the problems relating to the mechanical engineering of railroads. *Prerequisite:* M. E. 22a and 23b.

PROFESSOR WILSON.

33b. COMMERCIAL ENGINEERING (3)—The factors controlling costs, efficiency systems, depreciation of machinery and equipment, inventories and valuations, cost keeping, time systems. Tu. Th. 4, W. 6.

PROFESSOR WILSON.

34. ENGINEERING SOCIETY.—The student branch of the *American Society of Mechanical Engineers* holds regular meetings. One credit will be given juniors and seniors for regular attendance and the presentation of at least two papers per year, on some engineering subject.

One-half credit will be allowed freshmen and sophomores for regular attendance, and the reading of assigned papers.

## MINING ENGINEERING

PROFESSOR DRAKE.

The four year course in engineering leading to the degree of B. Mi. E. is outlined on p. 93. The course is so planned as to give instruction in the underlying principles of geology and mining engineering. The practical work of mining, metallurgy, and ore dressing can be learned so much more rapidly and effectively by actual work that no laboratory instruction in these lines is offered at the University. Students are expected to spend parts of at least two summer vacations at ordinary day's work in some mine, mill, or smelter, where they will be expected to ask questions of the workmen and keep notes of their observations, and compute the costs of some detailed operations.

While the course is not especially exacting, it is severe and should be undertaken only by students well prepared mentally and in good health. To accomplish all the work well, the average student will have to devote seven or eight hours per day, six days per week, to his college work during the academic year.

## MINING

1b. DETAILS OF MINING OPERATIONS (3)—Lectures and recitations three hours per week during the second term on excavation of earth, drilling and blasting; driving shafts, adits and drifts; stoping, timbering, hoisting, transportation, drainage and ventilation.

PROFESSOR DRAKE.

2a. ORE DRESSING (3)—General principles and theory of ore dressing, cleansing, crushing, sizing and classifying, jigging, table concentrating, stamp milling of gold and silver ores, and description of typical ore dressing works. Text-book: Richards' *Ore Dressing*.

PROFESSOR DRAKE.

## METALLURGY

1b. GENERAL METALLURGY (2)—Elementary study of fuels and furnaces and the metallurgy of iron and steel, copper, lead, silver, and gold. Lectures and recitations.

PROFESSOR DRAKE.

2b. ASSAYING (1)—Fire assaying of various classes of ores and furnace products of gold, silver, and lead. Laboratory work four hours per week on Saturdays with occasional lectures and recitations. Text-book: Fulton's *Manual of Fire Assaying*.

PROFESSOR DRAKE.

The courses in Mining and Metallurgy will be extended when there is an increased demand for such courses and when additional teaching force is added to the department.

ENGLISH, MODERN LANGUAGES, MATHEMATICS,  
PHYSICS, CHEMISTRY, GEOLOGY, ECONOMICS.

For descriptions of the courses in English, Modern Languages, Mathematics, Physics, Chemistry, Geology, Economics, see the announcements of the College of Arts and Sciences.

# THE COLLEGE OF AGRICULTURE

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## FACULTY

- JOHN HUGH REYNOLDS, M. A., *Acting President of the University.*
- \*CHARLES FREDERICK ADAMS, M. A., M. D., *Dean of the College of Agriculture*
- ROBERT ROBSON DINWIDDIE, M. D., *Professor of Pathology and Bacteriology*
- ERNEST WALKER, B. S. A., *Professor of Horticulture*
- CHARLES GEIGER CARROLL, Ph. D., *Professor of Chemistry*
- MARTIN NELSON, M. S., *Professor of Agronomy*
- EDGAR FINLEY SHANNON, Ph. D., *Professor of English*
- BIRTON NEILL WILSON, M. E., *Professor of Mechanical Engineering*
- JOSEPH LEE HEWITT, B. S. A. *Professor of Plant Pathology*
- JOHN FREDERICK STANFORD, D. V. S., *Professor of Veterinary Science*
- RAYMOND CHARLES THOMPSON, B. S., *Professor of Agricultural Chemistry*
- \*GEORGE AUGUST BLANK, B. S. A., *Acting Professor of Animal Husbandry*
- GEORGE GROVER BECKER, B. S., *Instructor in Entomology, Acting Professor of Entomology*
- JOHN MELVIN WILSON, B. S., *Professor of Extension*
- ROLAND M. GOW, D. V. S., *Assistant Professor of Veterinary Science*
- CHARLES VLADIS RUEZK, B. S. A., *Assistant Professor of Agronomy*
- WILLIAM CASPER LASSETTER, B. S. A., *Assistant Professor of Agronomy*
- WILLARD CHANDLER THOMPSON, B. S. A., *Instructor in Animal Husbandry*
- JOHN MALLORY BORDERS, B. S. A., *Instructor in Agronomy*
- HARTLEY EUGENE TRUAX, B. S. A., *Instructor in Plant Pathology*
- JUSTIN RANDOLPH TUCKER, B. S. A., *Instructor in Agricultural Chemistry*
- CARL GAY DAVIS, B. A., *Assistant in Animal Pathology*
- WILLIAM L. NETTLESHIP, *Assistant in Dairying*

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\* Resigned.

The purpose of the College of Agriculture is to train for efficiency in agriculture. The courses offered have several distinct purposes; namely, to train for the profession of farming, for the teaching of agriculture, and to give direction to specialization in some particular branch or branches of agriculture, thus preparing for work in Experiment Stations, and in the service of the United States Government.

#### ADMISSION

The admission requirements for the college are given in the general statement of the entrance requirements of the University, pp. 19, 20.

#### REQUIREMENTS FOR GRADUATION

The collegiate course of four years leads to the degree of Bachelor of Science in Agriculture. Sixty-seven hours, including military training, are required for graduation. The work of the first two years is prescribed. This is also true in parts of the work of the junior and senior years.

Not later than the beginning of the junior year the student is required to choose his major study, which largely determines the remainder of his work. The outline of the curriculum, page 114, indicates the range of choice permitted.

The student must present a minimum of ten hours credit in the major subject and six hours in a minor subject, which must be allied to his major. Except in case of students preparing for the teaching profession the major and minor must be chosen in departments of the College of Agriculture.

Students preparing for professional and graduate work must present six hours credit in one modern language.

A thesis is required of all candidates for a degree.

#### UNCLASSIFIED WORK

Permission to elect special practical work by students who can attend college for one or two years only, will be granted, at the discretion of the Dean, to students who can supply satisfactory evidence that they have had two or more years of practical farm experience. This privilege will not be granted a second time to a student who has not passed satisfactorily all of the work for which he has enrolled in the University.

Correspondence courses offered by the college are described in detail under the head of Extension, page 128.

## REQUIRED OF ALL CANDIDATES FOR THE B. S. A. DEGREE

## FRESHMAN YEAR

<b>First Semester</b>	Hours Per Week	<b>Second Semester</b>	Hours Per Week
English 1, Rhetoric and Composition .....	3	English 1, Rhetoric and Composition .....	3
Chemistry 1, Inorganic Chemistry .....	3	Chemistry 1, Inorganic Chemistry .....	3
Plant Pathology 11a, Plant Histology and Physiology....	3	Plant Pathology 11b, Plant Physiology and Ecology....	3
Agronomy 1a, Agronomy.....	3	Agronomy 1b, Agronomy.....	3
Animal Husbandry 1a, Types and Breeds of Farm Animals 3		Horticulture 1b, Propagation of Plants and Principles of Plant Culture .....	3
M. E. 11, Drawing.....	2	Chemistry 5, Qualitative Analysis .....	2
Military Science.....	1	Military Science.....	1

## SOPHOMORE YEAR

<b>First Semester</b>	Hours Per Week	<b>Second Semester</b>	Hours Per Week
Chemistry 6, Qualitative Analysis .....	3	Chemistry 3, Elementary Organic Chemistry .....	3
Agronomy 2a, Soil Physics....	5	Animal Husbandry 5b, Dairy-ing .....	4
Mathematics 8a, Algebra and Plane Trigonometry .....	4	Physics 5b, Elementary Physics .....	5
Bacteriology 1, Bacteriology....	3	Bacteriology 1, Bacteriology....	3
M. E. 14, Shop Work, Carpentry .....	2	C. E. 9b, Surveying.....	1
Military Science .....	1	Military Science.....	1

## JUNIOR YEAR

<b>First Semester</b>	Hours Per Week	<b>Second Semester</b>	Hours Per Week
Agricultural Chemistry 1a, Agricultural Chemistry .....	3	Entomology 1b, General Entomology .....	3
English 13, English Composition .....	3	English 13, English Composition .....	3
Military Science.....	1	Military Science .....	1

## SENIOR YEAR

<b>First Semester</b>	Hours Per Week	<b>Second Semester</b>	Hours Per Week
Industrial History.....	3	Economics .....	3

One of the following groups is to be selected at the beginning of the junior year:

*Required of Students Majoring in Agronomy*

	Credit Hours
Plant Pathology 3a, Plant Diseases.....	2
Animal Husbandry 1b, Feeds and Feeding.....	$1\frac{1}{2}$
Agronomy 4a, 4b, Farm Crops.....	5
To be selected under the direction of the major professor .....	$10$
Electives .....	3

*Required of Students Majoring in Animal Husbandry*

	Hours per week	Credit Hours
Veterinary Science 1a.....	3	3
Agronomy 5b, 5l, Soil Fertility.....	$2\frac{1}{2}$	$2\frac{1}{2}$
Animal Husbandry 1b, Feeds and Feeding.....	$1\frac{1}{2}$	$1\frac{1}{2}$
Animal Husbandry 3b, Live Stock Breeding.....	$1\frac{1}{2}$	$1\frac{1}{2}$
To be selected under the direction of the major professor .....	$10$	$10$
Electives .....	3	3

*Required of Students Majoring in Horticulture*

	Credit Hours
Plant Pathology 3a, Plant Diseases.....	2
Agronomy 5b, 5l, Soil Fertility.....	$2\frac{1}{2}$
Horticulture 6a, 6b, Special Studies.....	2
To be selected under the direction of the major professor .....	$12$
Electives .....	3

*Required of Students Preparing to Teach Agriculture*

	Credit Hours
Education .....	$9\frac{1}{2}$
Agricultural Education 2b.....	$1\frac{1}{2}$
Geology or Biology.....	3
Animal Husbandry 1b, Feeds and Feeding.....	$1\frac{1}{2}$
Horticulture 3b, Olericulture.....	1
Animal Husbandry 2a, Stock Judging.....	1
Plant Pathology 3a, Plant Diseases or Agronomy 4a, Farm Crops .....	$2-2\frac{1}{2}$
Elective in Horticulture.....	$1\frac{1}{2}$
Elective .....	2

*Required of Students Looking to Professional and Graduate Work*

	Credit Hours
Modern Language.....	6
Major subject .....	6
Minor .....	$4\frac{1}{2}$
Agricultural Chemistry 2.....	2
Thesis (in the major subject) .....	$1\frac{1}{2}$
Elective .....	$.1\frac{1}{2}$

## LABORATORIES AND EQUIPMENT

*Agricultural Chemistry Laboratory.* The laboratory of agricultural chemistry is located in three rooms in the old experiment station building. It is equipped with water, gas, tables, hoods, and all apparatus necessary for analytical work relative to various agricultural problems.

*Cotton Laboratory.* The cotton laboratory is located in the Agricultural Building. It is equipped for technical study of cotton and cotton fiber in addition to the more practical study. A new improved gin, a common gin, a fiber-strength testing machine, a lantern for the study of length and character of fiber, a microscope, and hundreds of samples of cotton, representing all types and grades are available for instruction and research.

*Entomological Laboratory.* The entomological laboratory is located on the first floor of Agricultural Hall, occupying two rooms. It is well supplied with apparatus such as microscopes, microtomes, paraffine baths, dissecting instruments, collecting nets, insect cabinets, and work-tables. The collection of insects is growing rapidly and serves as a valuable aid to the student of entomology.

*Field Crops Laboratory.* The laboratory of field crops is located on the second floor of the Agricultural Building. A complete set of material is used in the study of types, strains and quality, and the scoring and judging of staple and miscellaneous crops.

*Horticultural Laboratory.* For such work as must be carried on indoors there is available for study and practice a fairly complete equipment of spraying machinery, garden tools, implements and conveniences. There are rooms equipped for practical instruction in grafting, seed sowing, seed testing, and transplanting. The greenhouse offers facilities for some phases of class work, plant study and practice.

*Plant Pathology Laboratory.* The laboratory of plant pathology is located in the Experiment Station Building. It is equipped with high power microscopes and such apparatus as is needed for the study of plant tissues and plant diseases.

*Soils Laboratory.* The soils laboratory is located on the first floor of the Agricultural Building. It is equipped with apparatus

for special study of soils with the view of giving the student an insight into the formation, composition, and character of soils with reference to their bearing upon soil fertility, adaptability, and all methods of soil treatment affecting the productivity and conservation of soils.

*Dairy Laboratories.* The Dairy Building is equipped with modern dairy machinery and with laboratory apparatus.

## DESCRIPTION OF COURSES OFFERED IN THE COLLEGE OF AGRICULTURE

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Courses designated by a number followed by the letter *a* are given during the first semester.

Courses designated by a number followed by the letter *b* are given during the second semester.

Courses designated by a number alone are continued through both semesters. Credit for one semester's work in such courses will not be given.

The number in parentheses after the name of a course indicates the number of hours of credit given for completion of the course.

It is provided that any course not prescribed for graduation may be withdrawn unless four or more students enroll for it.

### PATHOLOGY AND BACTERIOLOGY

PROFESSOR DINWIDDIE, MR. DAVIS.

1. BACTERIOLOGY (3)—Lectures and laboratory work. An elementary course in general bacteriology, designed as a general course for those who intend to study more in detail the application of bacteriology to the various branches of agriculture—soils, dairying, plant and animal diseases. The lectures are descriptive of the morphology and functional activity of bacterial organisms as saprophytes and as producers of disease.

In the laboratory practical exercises are given in the technique of bacteriologic study and investigation. *Required of sophomores.*

2b. RURAL HYGIENE (2)—A course of lectures on modern principles of sanitation in reference to the farm, home and rural communities. It includes the location and care of wells, barns, dwellings and outhouses, and the modern methods for the sanitary disposal of waste, all with reference especially to the well known insanitary conditions prevailing in rural communities in the South.

## HORTICULTURE

PROFESSOR WALKER.

Horticulture concerns itself with the principles of plant growth and culture as applied to the skillful and economic production and improvement of fruits, vegetables and ornamental plants. Horticulture includes also the fundamental principle of landscape gardening and forestry.

In the curriculum of the College of Agriculture, Horticulture is required of all students. Students specializing in agricultural education are required to take three additional hours in horticulture. The requirements for a major in horticulture are given in the outline of the curriculum. It is advisable for the student to select and emphasize some particular branch of horticulture.

1b. PROPAGATION OF PLANTS AND PRINCIPLES OF PLANT CULTURE (3)—This course is of a wide practical value, dealing with the methods used in greenhouse and nursery in the multiplication of plants, seedage, cuttings, grafting, budding, etc.; care of young greenhouse and nursery stock. *Required of freshmen.*

2. FRUIT GROWING (3)—Commercial orchards; apple, peach, and other tree fruits suited to this state; the home orchard; viticulture; varieties, pruning, fertilization of orchards and vineyards, cultivation, marketing. Lectures and laboratory work.

3a. FRUIT GROWING (2)—Small fruits—strawberries, blackberries, raspberries, etc., soils, varieties, fertilization, cultivation, marketing.

3b. OLERICULTURE (2)—The principles of vegetable growing; the home vegetable garden; market gardening; management of cold frames and hot beds, transplanting, manures, fertilizers, forcing.

4a. FLORICULTURE (2)—Greenhouse construction and management; heating, ventilation, watering; the principal commercial greenhouse plants; packing and shipping.

4b. FORCING-HOUSES AND FORCING-HOUSE METHODS (2)—Cut flowers; the forcing of fruits and vegetables.

5a. FORESTRY (2)—The course forms the basis of a general knowledge of the subject or serves as an introduction to more extended study.

5b. LANDSCAPE GARDENING (2)—A study of the principles of the subject with special reference to the selection and arrangement of trees and plants for the ornamentation of home and school grounds, parks and cemeteries.

6a. SPECIAL WORK AND PRACTICE (2)—Handicraft and technical study for advanced students. The work will be arranged to suit the needs of the student.

6b. SPECIAL STUDIES AND REPORTS (2)—To be taken in connection with and as supplementary to the preceding course.

7. THESIS (2)—Experimental work. *Required of seniors majoring in horticulture.* Hours by arrangement.

8a. POMOLOGY, SYSTEMATIC AND COMMERCIAL (2)—Description of fruits, classes, harvesting, packing, storing, marketing, exhibiting, scoring. *Not given in 1913-14.*

8b. PLANT BREEDING (2)—This course is concerned with the principles and methods involved in the origin or development of improved varieties. *Not given in 1913-14.*

9. FRUIT PRODUCTS (2)—Canning and preserving fruits and vegetables; evaporating; vinegar making. *Not given in 1913-14.*

## AGRONOMY

PROFESSOR NELSON, ASSISTANT PROFESSOR RUZEK, ASSISTANT  
PROFESSOR LASSETTER, MR. BORDERS.

Agronomy is the science of the field, the soil and its crops. The study of the soil is conducted from the standpoint of the fundamental principles of management of the soil for crop production and to afford opportunity for special study in particular fields of the subject. The study presupposes a fair understanding of the general principles of physics, chemistry, and plant physiology.

The study of crops is conducted from the standpoint of the fundamental biological and physiological principles underlying the growth, adaptation and improvement of plants, and economic and business management of the field and its crop. The study presupposes a general knowledge of botany.

1a. AGRONOMY (2)—The course comprises a study of crops—corn and small grains, cotton and other fibre crops, grasses, clovers, forage and miscellaneous crops. It consists of a study of types, varieties, strains, quality, market standards, the use of

score cards, grading, identification of seeds of grasses, clovers, alfalfa and other legumes and forage crops, weed seed and characteristic adulterants, noxious and parasitic seeds. Stress is placed upon the staple crops. Lecture and laboratory work combined. M. W. F. 3, 4. *Required of freshmen.*

1b. AGRONOMY (3)—Continuation of 1a. M. W. F. 3, 4. *Required of freshmen.*

2a. SOIL PHYSICS (3)—This course comprises a study of the nature, origin, formation, and classification of soils; soil moisture and the methods of conserving it; movements of soil water; its relation to color, light, and temperature; objects and method of use of farm implements as related to the various soils and crops; cultivation and drainage as affecting soil moisture, temperature, aeration, root development, and the supply of available plant food. Three lecture periods. M. W. F. 1. *Required of sophomores.*

2b. SOIL PHYSICS (3)—A laboratory course. Supplementary to course 2a. Designed to prepare the student better to understand the nature of soil, the methods of treatment of soil and the effect of these methods upon aeration, texture, temperature, moisture, water holding capacity, and crop production. The work comprises the determination of such constants as specific gravity, pore space, capillarity, organic matter, etc., of the various types of soils; mechanical analysis of soils; soil survey and soil mapping. Two three-hour periods. M. F. 5, 6, 7. *Required of sophomores.*

4a. FARM CROPS (5)—This course embraces a thorough study of staple and miscellaneous farm crops; methods of cultivation, seeding, harvesting, storing, and marketing; testing, selecting, and improvement; combating weeds. M. T. W. Th. F. 2. *Required of students majoring in agronomy.*

4b. FARM CROPS (5)—Continuation of 4a. M. T. W. Th. F. 2. *Required of students majoring in agronomy.*

5b. SOIL FERTILITY (3)—A study of conditions governing productivity, exhaustion of soils and maintenance of fertility; soil bacteria, organic matter, green manures, farm manures, and commercial fertilizers; effect of crops and fertilization; rotation of crops and treatment of soil; soil building; a permanent agriculture. M. W. F. 1.

5l. SOIL FERTILITY (2)—A laboratory course in soil chemistry. Supplementary to 5b. Two periods. T. Th. 5, 6, 7.

6b. FARM DRAINAGE (3)—This course comprises the study of drainage and irrigation relative to the farm; the mapping, planning, and laying of drainage systems and rice farms; field work, including the care, adjustment, and use of instruments used in this work. Recitation and laboratory work three periods per week. *Prerequisite:* Agronomy 2a.

7. SPECIAL JUDGING (2)—Advanced judging of cotton, corn, rice and grains. Lectures, laboratory exercises, and assigned reading. *For advanced students and graduates.* *Prerequisite:* Agronomy 1a, 1b, 2a, 2b, 4a, 4b.

8a. GENETICS (3)—The fundamental principles of variation and heredity. Designed to give a thorough knowledge of the basic principles involved in the systematic improvement of plants and animals. The course is preparatory to courses in practical plant and animal breeding.

8b. PLANT BREEDING (3)—The practical application of the principles of variation and heredity to the breeding of general farm crops. Special attention is paid to the practical breeding of corn, cotton, grains, and forage crops. Lectures and assigned readings. *For advanced students and graduates.* *Prerequisite:* Agronomy 8a.

9a. FARM MANAGEMENT (3)—Choosing and buying the farm. Systems of farming—intensive and extensive, specialized and general; arrangement, organization, and equipment for special systems; administration and cost of production; marketing farm products; records, accounts. *For advanced students and graduates.*

10. RESEARCH WORK—Individual effort combined with class work. One or both semesters. For advanced students and graduates.

11. THESIS—Special investigation of subjects in the field of agronomy. *Required of students majoring in agronomy.* Hours to be arranged.

#### PLANT PATHOLOGY

PROFESSOR HEWITT, MR. TRUAX.

Plant Pathology 1t, 2b, 3a, 3b, 4b, treat the subject of plant diseases primarily from the standpoint of agriculture. The work in morphology and histology is such as will lead to a thorough understanding of the economic aspects of the subject.

Plant Pathology 11a, 11b, and 12b are fundamental to the technical work in field and orchard crops and in forestry respectively.

1a. MYCOLOGY (4)—Morphology of typical fungus forms and the classification of fungi, including a brief consideration of the allied groups of lower plants.

2b. PLANT PATHOLOGY (4)—Disease of plants in relation to parasites and environment. The conditions inducing disease and the reaction of the diseased organism. Three hours per week are spent in the class room and the equivalent of one hour per week is spent in summer field work. *Prerequisite:* Plant Pathology 1a.

3a DISEASES OF PLANTS (3)—The more important fungous and bacterial diseases of crop plants, their characteristics and control. *Required of students majoring in horticulture and in agronomy.* *Prerequisite:* Plant Pathology 11a.

3b. DISEASES OF TREES (3)—The diseases of economically important forest trees, the causes of decay in timber. *Prerequisite:* Plant Pathology 1a or 3a.

4b. BACTERIA IN RELATION TO PLANT DISEASE (3)—Cultural and morphological studies of bacteria causing plant disease. Infection experiments. *Prerequisite:* Plant Pathology 1a or 3a.

11a. ELEMENTARY PLANT HISTOLOGY AND PHYSIOLOGY (3)—Should be preceded by general botany or morphology. A study of plant tissues and organs and their functions from the standpoint of agriculture. *Required of freshmen.*

11b. PLANT PHYSIOLOGY AND ECOLOGY (3)—A continuation of course 11a. The study of plant growth and reproduction as influenced by environment. This course, like the last, is treated from the economic standpoint, dealing with such subjects as plant propagation, forcing, etherizing, hybridizing, breeding, the principles of plant growth. The laboratory work will be with a large number of living plants under the direct control of the students. M. W. F. or T. Th. S. 2, 3. *Required of freshmen.*

12b. PHYSIOLOGY AND ECOLOGY OF TREES (3)—Study of typical forest societies, comparative histology and physiology of some typical trees. *Prerequisite:* Plant Pathology 11a and 11b.

13a. DESCRIPTION AND CLASSIFICATION OF ECONOMIC PLANTS (2)—A brief systematic course dealing with common crop plants and weeds; seed impurities.

14. RESEARCH WORK—Will be assigned to students with adequate preparation. Hours to be arranged. Not less than three credit hours.

### VETERINARY SCIENCE

PROFESSOR STANFORD, ASSISTANT PROFESSOR GOW.

1a. VETERINARY SCIENCE (3)—This course comprises a general outline of veterinary anatomy and physiology, diseases of animals, their treatment, and simple surgery. Two lectures, one laboratory period on Saturday, clinics from 8 to 12 o'clock. *Required of students majoring in animal husbandry.*

1b. VETERINARY SCIENCE (3)—This course consists of the anatomy and physiology of domestic animals; dentition and the determination of age by teeth; lameness—its cause, prevention and cure; ventilation and disinfection; contagious diseases and diseased processes; methods of restraint and anæsthetics, surgery. *Required of students majoring in animal husbandry.*

### AGRICULTURAL CHEMISTRY

PROFESSOR THOMPSON, MR. TUCKER.

Agricultural Chemistry deals mainly with the changes occurring in the soil, the growth and life of plants, the feeding of animals, and the preparation of food products. It is essentially the application of chemistry to agricultural problems.

In the following courses it is assumed that the student possesses an acquaintance with general chemistry and is familiar with the properties of the more commonly occurring elements and their compounds.

1a. AGRICULTURAL CHEMISTRY (3)—A detailed study of the application of chemistry to agricultural problems, with special reference to the income and outgo of the elements that determine success or failure in crop production, and hence the agricultural prosperity of a country. *Prerequisite:* Chemistry I, 3, and 5. *Required of juniors.*

2. AGRICULTURAL CHEMISTRY—This course will consist largely of the chemical analysis of fertilizers, insecticides and fungicides, dairy products, concentrated feeds and feeding stuffs, and soils. The laboratory work will be supplemented by lectures. Amount of credit to be determined by the work done. Hours to be arranged. *Prerequisite:* Chemistry I, 5, and 6.

## ENTOMOLOGY

MR. BECKER.

The courses of this department, as outlined below, are designed to meet the needs of two classes of students; namely, students of agriculture who desire to get an insight into the subject from an economic standpoint, and students who wish to make a more thorough study of the subject with a view towards specialization in the field of entomology.

1a. GENERAL ENTOMOLOGY (3)—Lectures and laboratory work in the morphology, habits and classification of insects. Two hours of lectures and three hours laboratory work per week.

2b. ECONOMIC ENTOMOLOGY (3)—Two hours of lectures and three hours of laboratory work per week. In the lectures the various economic insects and critical phases of their life histories, methods of control, insecticides, spray machinery, etc., are discussed. Laboratory work is given over to the compounding of insecticides, studying different spray machinery, and to field study of the habits of some of the economically important insects. *Prerequisite:* Entomology 1a.

3a. MORPHOLOGY OF INSECTS (3)—This course takes up in more detail the laboratory work in Entomology 1a and is designed for students who wish to do more advanced work in entomology. Must be preceded or accompanied by Entomology 1a. The student may take this course in lieu of the laboratory course in Entomology 1a. Hours by appointment.

4a or 4b. ELEMENTARY SYSTEMATIC ENTOMOLOGY (3)—Laboratory study of wing venation of insects and of the grosser distinguishing characteristics used in classifying insects. *Prerequisite:* Entomology 1a or 2b. Hours by appointment.

5a or 5b. ADVANCED SYSTEMATIC ENTOMOLOGY—Laboratory work in classification. A study of some of the finer distinguishing characteristics of insects. *Prerequisite:* Entomology 1a, 2b, and 3a. Hours by appointment.

6b. HISTOLOGY OF INSECTS (3)—Laboratory study of the cell structure of insects. *Prerequisite:* Entomology 1a and 2b. Hours by appointment.

7. RESEARCH WORK—Will be assigned to students having adequate preparation. Two or more credit hours. Hours by appointment.

## ANIMAL HUSBANDRY

MR. THOMPSON, MR. NETTLESHIP.

This department offers courses for students who desire a knowledge of the various phases of live stock production, dairying or poultry keeping. The stock and poultry owned by the department are used in the classroom for the purpose of familiarizing the students with the various types and breeds kept. Students interested in dairy manufactures are given the privilege of studying the machinery in operation at the creamery. Certain courses, so marked, are required of all B. S. A. students. Major students are required to take courses along their chosen lines and to complete a thesis before graduation.

1a. TYPES AND BREEDS OF FARM ANIMALS (3)—The most important breeds of horses, cattle, sheep and swine will be discussed with regard to their origin, distribution, adaptability and leading characteristics. *Required of freshmen.*

1b. FEEDS AND FEEDING (3)—A study of the composition of feeds, their digestible nutrients, the compounding of balanced rations for the various classes of farm animals, and the preparing of the various feeds. The approved methods of feeding all classes of animals will be considered. *Required of students majoring in animal husbandry.*

2a. STOCK JUDGING (2)—Advanced work in the judging of the various classes of live stock, combined with topic work on kindred phases. Some pedigree work will be given. T. Th. 6 and 7.

2b. PRACTICAL LIVE STOCK MANAGEMENT (2)—A lecture course dealing with the fundamental principles of the care and management of all classes of farm livestock. Hours to be arranged.

3a. PORK PRODUCTION (2)—An advanced study of the types and breeds of swine, the most approved and economical methods of growing and finishing market hogs, the selection, care and management of the breeding stock, and the best methods of housing yarding and pasturing swine will be made. Hours to be arranged. *Prerequisite:* Animal Husbandry 1a.

3b. LIVE STOCK BREEDING (3)—The laws of heredity, variation, atavism and correlation are given special attention. Prepo-

tency and fecundity and the influences that effect them are discussed. In-and-in breeding, line breeding, cross breeding, grading, and the formation of breeds are taken up in detail. *Prerequisite:* Animal Husbandry 1a and 1b. *Required of students majoring in animal husbandry.*

4a. MUTTON AND WOOL PRODUCTION—BEEF PRODUCTION (3)—The first half of the semester will be devoted to the study of the leading breeds of sheep and the most approved methods of sheep management in so far as they deal with the economical production of mutton and wool. The second half of the semester will deal with similar phases of the beef cattle industry. An effort will be made to make this course deal with the practical side of these two industries. Three hours. T. Th. S. 4. *Prerequisite:* Animal Husbandry 1a.

4b. FEEDING, CARE AND MANAGEMENT OF HORSES (3)—A study of the most economical feeds, for maintenance, light, medium and heavy work. Feed for stallions, brood mares, and colts, breaking, training, etc. It will be the aim of the course to treat the entire subject in detail. M. W. F. 4. *Prerequisite:* Animal Husbandry 1a.

5a. FEEDING, CARE AND MANAGEMENT OF DAIRY CATTLE (2)—A study of the dairy breeds of cattle, modern methods of feeding, caring for and managing the dairy herd. Dairy barns will also be studied. T. Th. 2.

5b. DAIRYING (4)—The composition of milk; methods of handling for butter and cheese making; hand separators; condenseries; city milk supply; milk testing; butter and ice-cream making. Two laboratory and two lecture periods per week. *Required of sophomores.*

6a. CITY MILK SUPPLY—ADVANCED MILK TESTING (3)—The first part of the course will deal with the value of milk as a food, the production and control of market milk, prevention of contamination, pasteurizing, bottling and delivering milk; certified, modified, pasteurized and standardized milk. The second part will consist of a thorough study of the Babcock test for all dairy products, the tests for the acidity of the milk, the casein test, the latcometer, and the detection of adulterations.

6b. BUTTER MAKING (3)—The composition of milk and butter, separation of milk by gravity and centrifugal force; pas-

teurization; the use of the different kinds of pure culture; cream ripening; churning; working, printing, packing and marketing butter.

7a. DAIRY MECHANICS (2)—Shop practice with engines, boilers, artificial refrigeration machinery, creamery machinery, pipe fitting, belt lacing, etc.

7b. DAIRY BACTERIOLOGY (2)—A lecture course in the application of the principles of bacteriology to the various phases of dairying.

8a. POULTRY KEEPING (3)—A course dealing with the economic side of the poultry industry, the classes and breeds of common poultry, the most approved methods of housing, yarding and pasturing poultry, caponizing, killing and dressing of market poultry, feeds and feeding, and general management. Two lectures and one laboratory period per week. Hours to be arranged.

8b. POULTRY KEEPING (2)—A continuation of 8a. The course will deal with egg production, artificial incubation and broodding, diseases of poultry, and a study of the markets.

9a. POULTRY JUDGING (2)—A laboratory course in the practical work of judging the various classes and breeds of poultry, according to the American Standard of Perfection.

9b. EGG PRODUCTION (2)—An advanced treatment of the general subject of the factors influencing egg production, the economic conditions giving rise to the demand for eggs, the market classification of eggs with research work on the subject of markets. A course intended for those who are especially interested in this important line of the poultry industry. Special topics on related subjects will be assigned. To be arranged. *Prerequisite:* Animal Husbandry 8a and 8b.

10. THESIS WORK (2)—The work will consist of a written treatment of a subject assigned by an instructor in charge. *Required of students majoring in animal husbandry.*

#### DEPARTMENT OF EXTENSION

PROFESSOR WILSON, MR. BORDERS.

The department of extension, as the name implies, was established for the purpose of carrying agricultural information to the farmers of the state. This is done by means of lectures,

farmers' institutes, extension schools or short courses and correspondence courses. In these several lines of effort members of all departments of the College of Agriculture assist when it is possible to leave other duties.

#### INSTITUTES AND SHORT COURSES

Lectures, meetings, institutes and extension schools are arranged by appointment and upon application in cooperation with organizations and towns in the various sections of the state. Where, as in most instances, the expenses of the school are borne by an organization or town, the College supplies a corps of lecturers to give well organized and systematic instruction.

#### CORRESPONDENCE COURSES

Agricultural instruction is offered by correspondence to those who desire to study but cannot, for various reasons, attend college. Courses are designed to meet the needs of boys and girls, teachers, farmers and persons preparing for special lines of agriculture. The expense connected with correspondence courses is limited to the necessary postage and text-books; instruction is free. Text-books may be purchased through the teacher or direct from the publisher.

Although the use of a well-written text-book in connection with all correspondence courses is more satisfactory, the department will conduct courses by using lesson sheets, which will be supplied free and used by the student in lieu of a text-book.

Full information regarding the character and method of conducting correspondence courses or other lines of extension work will be supplied upon application.

#### OUTLINE OF COURSES

**COURSE I. ELEMENTARY AGRICULTURE**—This course is intended to prepare teachers for examination for certificates and fit them to give effective instruction in nature study and agriculture in the public schools of the state. Warren: *Elements of Agriculture*. Price \$1.25.

\***COURSE II—Soils and How to Treat Them.** Brooks: *Agriculture*, Vol. 1. Price \$1.25.

\***COURSE III—Manures and Fertilizers.** Brooks: *Agriculture*, Vol. 2. Price \$1.25.

\*COURSE IV—Animal Husbandry. Brooks: *Agriculture*, Vol. 3. Price \$1.25.

COURSE V—Field Crops. Duggar: *Southern Field Crops*. Price \$1.75.

COURSE VI—Fruit Growing. Bailey: *Principles of Fruit Growing*. Price \$1.50.

COURSE VII—Gardening. Bailey: *Principles of Vegetable Gardening*. Price \$1.50.

COURSE VIII—Floriculture. Rexford: *Home Floriculture*. Price \$1.00.

COURSE IX—Dairying. Eckles: *Dairying, Dairy Cattle and Milk Production*. \$1.50.

\*The three books by Brooks may be obtained, by ordering at the same time, for \$3.50.

#### COLLEGIATE COURSES

I. AGRICULTURAL EDUCATION (3)—This is a general course in agriculture designed especially for students preparing to teach in the public schools. The course consists of lectures and laboratory work. M. W. 3, 5, or 6; Laboratory Tu. or Th. 6-7; or Sat. 2-3. *Required of all Normal students.*

2b. AGRICULTURAL EDUCATION (3)—This course is a study of methods of teaching agriculture in high schools. Offered only in alternate years. *Required of students majoring in agricultural education.*

#### ENGLISH, MATHEMATICS, CHEMISTRY, PHYSICS, MODERN LANGUAGES

For descriptions of the courses in English, Mathematics, Chemistry, Physics and Modern Languages, see the announcements of the College of Arts and Sciences.

#### DRAWING, SHOPWORK, SURVEYING

For descriptions of the courses in Drawing, Shopwork and Surveying see the announcements of the College of Engineering.

# THE AGRICULTURAL EXPERIMENT STATION

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## STATION STAFF

JOHN HUGH REYNOLDS, *Acting President of the University*  
\*CHARLES FREDERICK ADAMS, *Director*  
ROBERT ROBSON DINWIDDIE, *Pathologist and Bacteriologist*  
ERNEST WALKER, *Horticulturist*  
MARTIN NELSON, *Agronomist*  
J. LEE HEWITT, *Plant Pathologist*  
J. F. STANFORD, *Veterinarian*  
RAYMOND C. THOMPSON, *Chemist*  
GEORGE G. BECKER, *Acting Entomologist*  
\*GEORGE A. BLANK, *Acting Animal Husbandman*  
ROWLAND M. GOW, *Assistant Veterinarian*  
CHARLES V. RUZEK, *Assistant Agronomist*  
WILLIAM C. LASSETTER, *Assistant Agronomist*  
WILLARD C. THOMPSON, *Assistant Animal Husbandman*  
JOHN M. BORDERS, *Assistant Agronomist*  
JUSTIN R. TUCKER, *Assistant Chemist*  
HARTLEY E. TRUAX, *Assistant Plant Pathologist*  
CARL G. DAVIS, *Assistant in Pathology and Bacteriology*  
WILLIAM L. NETTLESHIP, *Assistant in Dairying*  
LEONARD L. WOOTTON, *Executive Clerk*

The purpose of the Experiment Station is to determine facts, work out problems and make investigations that have a bearing upon the agriculture of the state and the country in general. The results of investigations are published in bulletin form and distributed free. All information in possession of the various departments of the institution is available to citizens of the state upon demand. The farmer is in this way relieved of the time, labor and expense involved in working out such facts for himself. He also receives the benefit of facts that only the best trained specialists are capable of determining. Practically all

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\*Resigned.

of the agricultural information that we possess and put into practice is based upon experiment station effort.

#### DEPARTMENTS OF THE STATION

THE OFFICE OF THE DIRECTOR OF THE EXPERIMENT STATION is in the new Agricultural Building.

THE DEPARTMENT OF BACTERIOLOGY AND ANIMAL PATHOLOGY has its office and laboratory in the Experiment Station Building. The department conducts investigation and research relative to the causes and character of animal diseases and means of combating them.

THE DEPARTMENT OF HORTICULTURE has its offices in the Experiment Station Building. It has a greenhouse, in which forcing experiments and other experiments in plant propagation are carried on. The orchards and grounds in charge of this department contain many varieties of apples, pears, plums, cherries, and small fruits, which serve as material for experiments with varieties, methods of culture, pruning and spraying.

THE DEPARTMENT OF AGRONOMY has its office on the second floor of the Agricultural Building. This department carries on investigations with farm crops, testing and breeding new and pure varieties of cotton, corn, grains, grasses for hay, pasture and cover crops, and other agricultural products. It also carries on experiments in soil fertility and the management of soils for different crops. The work of this department is conducted on the station farm and at the substations. A special feature is the work with cotton and corn at the substations of the southern part of the state.

THE DEPARTMENT OF PLANT PATHOLOGY has its office and laboratory in the Experiment Station Building. This department carries on investigation of plant diseases with reference to their nature, cause of development, and means of combating and eradicating them. The department is equipped with excellent apparatus for its investigations.

THE DEPARTMENT OF VETERINARY SCIENCE is located in the Experiment Station Building. State inspection for contagious diseases of animals and for the eradication of cattle tick is supervised by this department; it investigates the best means of checking and stamping out diseases of animals.

THE DEPARTMENT OF CHEMISTRY is located in the Experiment Station Building. Its laboratories are fitted with improved modern apparatus. This department carries on investigations along chemical lines.

THE DEPARTMENT OF ENTOMOLOGY has its office and laboratories on the first floor of the Agricultural Building. Investigations are conducted by this department in life histories of insects injurious to agriculture and methods of exterminating such insects. Orchard nursery inspection is a feature of the work.

THE DEPARTMENT OF ANIMAL HUSBANDRY is located in the Dairy Building. This department carries on investigations in feeding, breeding, and care of farm animals, including poultry. Its special feature is a well-selected herd of hogs, representing several breeds, on which various feeding and breeding tests are made. In connection with this department is a model dairy, equipped with improved dairy machinery and well equipped with laboratories. The dairy is conducted on an economic basis.

# THE MEDICAL COLLEGE

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## FACULTY

JOHN HUGH REYNOLDS, M. A., *Acting President of the University*

MORGAN SMITH, M. D., *Dean and Professor of Diseases of Children and Lecturer on Hygiene*

EDWIN BENTLEY, M. D., U. S. A. (Retired), *Emeritus Professor of Surgery*

JAMES H. LENOW, M. A., M. D., *Emeritus Professor of Genito-Urinary Diseases*

\*REGIN W. LINDSEY, M. D., *Emeritus Professor of Medicine*

\*EDWIN R. DIBRELL, M. D., *Professor of Medicine*

FRANK VINSONHALER, M. D., *Professor of Diseases of the Eye, Ear, Nose and Throat*

ANDERSON WATKINS, M. D., *Professor of Genito-Urinary Diseases and Associate Professor of Surgery*

CALEB E. WITT, M. D., *Professor of Materia Medica, Pharmacology and Therapeutics*

ARTHUR R. STOVER, M. A., M. D., *Professor of Chemistry*

JOSEPH P. RUNYAN, M. D., *Professor of Surgery*

CHARLES R. SHINAULT, M. D., *Professor of Gynecology*

WILLIAM R. BATHURST, M. D., *Professor of Dermatology and Syphilology*

JAMES L. DIBRELL, M. D., *Professor of Anatomy and Demonstrator of Operative Surgery*

JOSEPH D. ARONSON, M. D., *Professor of Pathology and Bacteriology*

JAMES L. GREENE, M. D., *Professor of Nervous and Mental Diseases*

JAMES C. CUNNINGHAM, M. D., *Professor of Obstetrics*

EDWARD M. PEMBERTON, M. D., *Professor of Physiology*

CARLE E. BENTLEY, M. D., *Associate Professor of Surgery*

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\* Deceased.

- WILLIAM A. SNODGRASS, M. D., *Associate Professor of Surgery*  
A. EVERETT HARRIS, M. D., *Associate Professor of Medicine*  
ORANGE K. JUDD, M. D., *Associate Professor of Medicine*  
EDWARD P. BLEDSOE, M. D., *Associate Professor of Nervous and Mental Diseases*
- JOHN G. WATKINS, M. D., *Associate Professor Diseases of Eye, Ear, Nose and Throat*
- DAN R. HARDEMAN, M. D., *Associate Professor of Pediatrics*  
MAHLON D. OGDEN, M. D., *Associate Professor of Gynecology*  
OSCAR GRAY, M. D., *Associate Professor of Gynecology*  
ROBERT CALDWELL, M. D., *Associate Professor of Diseases of Eye, Ear, Nose and Throat*
- SAMUEL S. STEWART, M. D., *Associate Professor of Obstetrics*  
A. L. CARMICHAEL, M. D., *Assistant Professor of Medicine*  
HENRY H. KIRBY, M. D., *Demonstrator of Anatomy*  
CHARLES R. CHESNUTT, M. D., *Assistant in Physiology*  
ROBERT L. SAXON, B. S., M. D., *Lecturer on Gynecology*  
ALBERT G. MCGILL, M. D., *Lecturer on Medicine*  
AUGUST M. ZELL, M. D., *Lecturer on Electro-Therapeutics*  
THOMAS E. HODGES, M. D., *Lecturer on Anatomy*  
SAMUEL P. VAUGHTER, M. D., *Lecturer on Materia Medica*  
ARMOUR K. WAYMAN, M. D., *Lecturer on Materia Medica and Pharmacology*
- MILTON VAUGHAN, M. D., *Lecturer on Tropical Diseases*  
M. E. DUNAWAY, B. A., LL. B., *Lecturer on Medical Jurisprudence*  
ROSCOE C. KORY, B. A., M. D., *Instructor in Histology and Embryology*  
CHARLES E. OATES, B. A., *Laboratory Instructor in Chemistry*  
J. P. SHEPPARD, M. D., *Clinical Instructor in Medicine*  
VERNE STOVER, M. D., *Clinical Instructor in Obstetrics and Therapeutics*
- J. VINCENT FALISI, M. D., *Clinical Assistant in Surgery*  
L. O. THOMPSON, M. D., *Assistant in the Bacteriological Laboratory*  
CLINTON P. MERIWETHER, M. D., *Clinical Instructor in Genito-Urinary Diseases*
- HOMER SCOTT, B. S., *Assistant in Electro-Therapeutics*  
D. C. LEE, *Student Assistant in Pathology and Bacteriology*

ELBERT STEWART, D. D. S., *Lecturer on Oral Hygiene*

CHARLES S. HOLT, *Demonstrator and Instructor in Operative Surgery*

The Medical Department of the University was organized at Little Rock in 1879. In 1911 it was consolidated with the College of Physicians and Surgeons and by an act of the general assembly became the Medical College of the University of Arkansas.

#### ADMISSION

The Medical College is co-educational.

Admission to the College may be by examination or by certificate.

*Admission by Certificate.* For admission candidates must present fourteen units of high school work, these units being the same as those required for admission to the colleges at Fayetteville (see pp. 19-20).

*Required are:*

English, 3 units; algebra,  $1\frac{1}{2}$  units; plane geometry, 1 unit; history, 1 unit; physics, 1 unit; Latin, 2 units. For the 2 units of Latin 4 units of either French or German may be substituted, provided a satisfactory examination in the elements of Latin grammar is passed.

Four and one-half additional units must be presented, selected from the following: Latin, 2 units, in addition to the 2 units required; Greek, 3 units; French, 3 units; German, 3; English, 1 unit in addition to the 3 units required; physical geography,  $\frac{1}{2}$  unit; physiology, 1 unit; botany, 1 unit; zoology, 1 unit; biology, 1 unit; chemistry, 1 unit; civics,  $\frac{1}{2}$  unit; agriculture, 1 unit; pedagogy,  $\frac{1}{2}$  unit; psychology,  $\frac{1}{2}$  unit; manual training,  $\frac{1}{2}$  unit.

*Admission by Examination.* Students who do not present acceptable credentials will be required to stand examinations for entrance. The examinations will cover the subjects required for admission by certificate and will be conducted according to the rules governing examinations for admission to the other colleges of the University.

The entrance examinations will be held at Little Rock by the State Superintendent of Public Instruction or by his authorized representative.

## REQUIREMENTS FOR GRADUATION

The degree of Doctor of Medicine (M. D.) is conferred on candidates who have met the requirements for graduation.

Candidates for the M. D. degree must be twenty-one years of age, must present satisfactory evidence of good moral character, and must have complied with the entrance requirements of this college.

Candidates must have attended and satisfactorily completed four courses of lectures, no two of which shall have been attended in the same calendar year. Three years of the required work may have been done in some medical college or colleges of recognized standing whose requirements are equivalent to those of this college. The last year of the four years' work must be done in the Medical College of the University of Arkansas.

## EQUIPMENT

*Buildings and Laboratories.* The main building, erected in 1890, is a three-story brick structure containing a lecture hall, amphitheater, museum, dissecting room and laboratories. A second building occupied chiefly by laboratories, has been outgrown, and the east wing of the old state capitol is used for laboratories of chemistry, embryology, histology, physiology, pathology, bacteriology, clinical microscopy, surgical pathology and pharmacology. These laboratories are well equipped with new apparatus and supplies. The space is ample and the rooms are well lighted.

## HOSPITAL AND CLINICAL FACILITIES

*The Logan H. Roots Memorial Hospital.* This public city hospital was founded by the late Logan H. Roots. Closed corridors connect the hospital with the clinical amphitheaters of the college building.

A large medical and surgical dispensary is connected with this hospital, which is conducted by members of the faculty.

*The Pulaski County Hospital.* This hospital is situated in the southwestern part of the city and has a capacity of two hundred beds.

A feature of the hospital is the cottage treatment of tuberculosis. Clinics are held at the hospital throughout the session.

*The University Hospital.* The College has perfected arrange-

ments with Dr. Meek, the owner of the University Hospital, by which students will receive instruction in the hospital. It is well equipped with modern operating rooms and has a capacity of one hundred beds.

It has rooms especially arranged for the care of acute nervous and mental diseases and the treatment of inebriety and narcotic habits, and maternity wards for the care of obstetrical cases.

*The Isaac Folsom Clinic.* This clinic was named in honor of the late Dr. Isaac Folsom, in consideration of his gift of an endowment of \$20,000.00. This clinic is under the direct and exclusive control of the faculty, and all its material is available for teaching purposes.

*St. Vincent's Infirmary.* St. Vincent's Infirmary, designed solely for the treatment of acute diseases, has a capacity of nearly two hundred beds. The hospital is splendidly equipped and conveniently situated. It is under the supervision and management of Sisters of Charity who are trained nurses.

*St. Luke's Hospital.* This new hospital for surgical and gynecological cases has been opened recently by a member of the faculty. It is modern in all its appointments.

#### STATE INSTITUTIONS

All of the eleemosynary institutions of the state are located in Little Rock. These include the Schools for the Blind, the School for Deaf Mutes, the State Hospital for Nervous Diseases, Penitentiary, Reform School, County and City Hospitals, etc., all of which contribute to the available clinical material.

#### EXPENSES

##### *Fees*

<i>Tuition Fee, per year .....</i>	\$125.00
<i>Graduation and Diploma Fee .....</i>	25.00

There are no other fees, but in the first and second year courses in chemistry a \$10.00 deposit to cover breakage, etc., is required; in the third year a \$3.00 deposit is required. After making the necessary deductions, the balance of a deposit is refunded.

*Living Expenses*

Board and lodging, including fuel and lights, may be had at a cost of \$4.00 to \$6.00 per week or of \$15.00 to \$20.00 per month.

*Hospital Appointments*

At the *Logan H. Roots Memorial Hospital* the staff annually appoints two resident physicians to serve twelve months each.

At the *University Hospital* Dr. E. Meek and his staff appoint two resident physicians every year.

At *St. Vincent's Infirmary* the staff selects two internes every year.

At the *Pulaski County Hospital* Dr. J. P. Sheppard and his staff select four internes every year.

At the *State Hospital for Nervous Diseases* the staff selects ten internes every year.

Appointment to the foregoing hospital positions are determined by competitive examinations. These examinations are held in the spring of the year and may be taken by graduates of the Medical College of the University of Arkansas.

## ANNOUNCEMENT

The next session of the Medical College of the University of Arkansas will begin on Monday, September 15, 1913.

Address Dr. Morgan Smith, Dean of the Medical College of the University of Arkansas, Little Rock, Arkansas, for the special *Bulletin of the Medical College*. The bulletin will give information in detail.

# THE BRANCH NORMAL COLLEGE

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## FACULTY

- WILLIAM STEPHEN HARRIS, SUPERINTENDENT, *Head of Mechanical Department, Instructor in Woodwork.*
- FREDERICK THOMAS VENEGAR, PRINCIPAL, *Psychology, Physical Science, Pedagogy*
- A. R. REEVES, B. A., *Mathematics, Botany*
- J. G. ISH, JR., B. A., *Mathematics, Physiology*
- H. M. TAYLOR, *History, Civil Government*  
C. P. McLURKIN, M. A., *Agriculture, Chemistry, Physics*  
ERNESTINE I. COPELAND, B. A., *English*  
IRENE C. ROSS, *English, Geography.*
- CHRISTINE RAMBO, B. M., *Vocal Music, History*  
MAYME J. BLAKEMORE, *Sewing*  
W. P. KOON, *Machine Shop and Forge*

The Branch Normal College is located at Pine Bluff, Arkansas. It was established pursuant to an act of the general assembly of Arkansas, of April 27, 1873, and has been in operation since 1875.

Its purpose is to provide industrial training and to train teachers for efficient service in the colored public schools of the state.

## PROPERTY AND BUILDINGS

The school property consists of twenty acres of land in the western suburbs of Pine Bluff.

The buildings include a two-story school building, containing an assembly hall, six class rooms, and cloak rooms; well equipped mechanical shops; and a dormitory for women.

## ADMISSION

Candidates for admission must be at least thirteen years of age and must pass a satisfactory examination in arithmetic, English grammar, geography, and United States history commensurate with the work covered in the fifth grade. Those coming from other schools must furnish evidence of satisfactory deportment and class standing.

## APPOINTMENT OF BENEFICIARIES

Beneficiary students may be appointed by the county judge of each county of the state. Students who receive these appointments pay no tuition fees.

## FEES AND EXPENSES

The *matriculation fee* is \$5.00.

*Board, fuel and light* in the women's dormitory cost \$8.00 per month.

*Tuition* costs \$1.00 per month.

All fees are payable in advance.

## DEPARTMENTS OF THE BRANCH NORMAL COLLEGE

*Preparatory Department.* In the preparatory department the foundation academic subjects are studied. The work of the department corresponds to sixth, seventh and eighth grade public school work.

*Normal Department.* To enter the normal department the student must have completed the work of the preparatory department. The purpose of the normal department is to prepare students for teaching. Upon satisfactory completion of the four years' course of study, students receive the L. I. (Licentiate of Instruction) Certificate.

*Industrial Department.* Beginning with the second year in the preparatory department, all students are required to pursue certain industrial courses. The industrial work extends through four years, and the completion of the work is attested by a certificate of efficiency.

Young men do shop work in mechanic arts, carpentry, and cabinetmaking, and have the opportunity to become skilled blacksmiths, machinists, engineers, or firemen.

Young women are taught plain sewing, cutting and fitting, and art needle-work.

*Agricultural Department.* In this department two courses of study are offered, one designed especially for students who are preparing to teach in the public schools, and a second course, for those who intend to teach agriculture. The latter course includes work in agronomy, farm economics, and kindred subjects.

## LITERARY SOCIETIES AND RHETORICALS

The *Phyllis Wheatley Literary Society* is a literary society for young women; the *Philosophian Literary Society* is a society for young men.

*Rhetoricals.* Public rhetorical exercises are held once each month. All students are required to take part in these exercises.

## ATHLETICS

There is an athletic association for young men and a similar association for young women.

## ANNOUNCEMENTS

The next session of the Branch Normal College will begin on Tuesday, September 2, 1913.

Entrance examinations will be held on September 2, 3, 4, and 5.

Further information regarding the work of the Branch Normal College may be had from Superintendent W. S. Harris or Principal F. T. Venegar, Pine Bluff, Arkansas.

# LISTS OF STUDENTS

1912-1913

## GRADUATE STUDENTS

Name	Course	Home Address
Carter, Nama	M. A.	Sulphur City
Thomas, Maud	M. A.	Paris
Wasson, Alfred Washington	M. A.	Fayetteville

## UNDERGRADUATE STUDENTS

### SENIOR CLASS

Achenbach, Charles Henry	E. E.	Deer Lodge, Mont.
Anderson, Willie	B. A.	Conway
Anderson, Louis Irvin	B. A.	Hollywood
Atkinson, Elza Roe	B. A.	Bodcaw
Ball, Samuel Milliard	B. A.	Ravenden
Barton, William Harvey	B. A.	Cove
Bayley, Paul Levern	B. A.	Fayetteville
Belts, Florence	B. A.	Fort Smith
Blackshare, Deane	B. A.	Fayetteville
Blackshare, Lochie	B. A.	Fayetteville
Blakeley, Lessie Ray	B. A.	Alix
Bledsoe, Alva	B. A.	LaCrosse
Bransford, William Hastings	E. E.	Fayetteville
Brereton, Blanche	B. A.	Topeka, Kan.
Brewer, Mack Hamilton	C. E.	Murfreesboro
Buckley, Samuel Spence	C. E.	Rogers
Bullock, Thomas Jackson	B. A.	Dover
Cherry, James Louis	B. S. A.	Paris
Collins, Albert James	E. E.	Fort Smith
Collins, James Homer	B. S. A.	Foreman
Cruze, Grant	C. E.	Knoxville, Tenn.
Davis, Robert Lee	B. A.	Larkin
Deane, Madeline	B. A.	Fayetteville
Deeg, Lena	B. A.	Eureka Springs
Dickinson, Raymond Virgil	M. E.	Horatio
Dortch, George Lewis	E. E.	Kerr
Douglass, William Edwin	E. E.	Galesburg, Ill.
Droke, Mary	B. A.	Fayetteville
English, Elbert Hartwell	B. S. A.	Little Rock
Gist, Joseph Elmon	B. A.	Franklin
Gladson, Hazel	B. A.	Fayetteville
Green, Thomas Andrew	B. S. A.	Mineral Springs
Greig, Star	B. S. A.	Van Buren
Hamilton, Andrew Claude	C. E.	Fayetteville
Harris, Martha	B. A.	Fayetteville
Highfill, LeRoy	B. S. A.	Fayetteville
Holzclaw, Henry	B. A.	Moro
Horton, Hugh	C. E.	Knoxville, Tenn.
Horton, Ralph	B. A.	Morrillton
Hurst, Jefferson Davis	B. A.	Fayetteville
Jackson, Thomas Alonzo	B. A.	Hamburg
Jernigan, William James	B. S. A.	Charlotte
Kelton, Fannie	B. A.	Fayetteville
Kinsworthy, Burton Sutton	B. A.	Little Rock
Kirby, A. Crump	B. A.	Harrison
Langston, Zora	B. A.	Vineyard
Lawson, Lillian	B. A.	Fayetteville
Lucas, Camille	B. A.	Little Rock
McClelland, Clarence J.	B. A.	Arkadelphia
McCluer, Robert Dabney	B. A.	Cane Hill
McDowell, John T.	C. E.	Athens, Texas
Marsh, James Evrard	B. A.	Rosston

Name	Course	Home Address
Mills, Edmund Fitzgerald	B. A.	Poteau, Okla.
Moore, James G.	B. A.	Sulphur Rock
Moore, Samuel William	C. E.	Kensett
Morton, Jennie	B. A.	Fort Smith
Moss, Lowell R.	B. A.	Little Rock
Newberry, Jacob Lawrence	B. A.	Arkadelphia
Norbury, Victoria	B. A.	Fayetteville
Northum, Ted Mortimer	E. E.	Charleston
Oliver, Goldsmith Blachley, Jr	B. A.	Corning
O'Neal, Fred LeFevre	E. E.	Rogers
Orton, Myrtle	B. A.	Cartersville, Mo.
Overton, William Robert	C. E.	Greenway
Parcell, Earl Wakeman	M. E.	Tampa, Fla.
Potter, Rissie Lois	B. S. A.	Fayetteville
Potter, Mabel	B. A.	Fayetteville
Potter, Winnie	B. A.	Fayetteville
Rhyne, Jake Ormand	B. A.	Foreman
Rice, Edna	B. A.	Siloam Springs
Richmond, Holman	M. E.	Fort Smith
Roark, Granville Wade	B. S. C.	Franklin, Ky.
Robinson, Henry Evalyn	B. A.	Jonesboro
Schalchlin, George Washington	E. E.	Mabelvale
Shannon, Mary	B. A.	Fayetteville
Skinner, Bernice J.	B. A.	Lockesburg
Snell, Edith	B. A.	Pascagoula, Miss.
Snodgrass, George Max	E. E.	Centralia, Okla.
Stockburger, Robert Roy	B. A.	Fayetteville
Stewart, Leelon Gustave	C. E.	Fayetteville
Stover, Don Alanson	E. E.	Rogers
Strickland, George	B. S. A.	Atkins
Tilley, Irene	B. A.	Fayetteville
Torrence, James Harold	B. S. C.	Fayetteville
Tucker, Moseley Clarence	B. S. A.	Fayetteville
Waldron, Richard C.	B. A.	Black Rock
Watkins, George Wesley	E. E.	Harrison
Watts, Thomas Shore	E. E.	Fayetteville
Webb, John Wesley	E. E.	Fayetteville
Whitty, Anna	B. A.	Fayetteville
Williams, Maurice	B. A.	Estes
Wohra, Har Das	M. E.	Piro Shah, Punjab, India
Wood, Roy Winton	B. A.	Little Rock
Woody, William Watson	B. A.	Fayetteville
Wylie, Colen Newton	B. A.	Prescott

## JUNIOR CLASS

Acree, William Frosty	B. A.	Maynard
Adams, Elizabeth	B. A.	Pine Bluff
Andrews, Molloy	B. S. A.	Siloam Springs
Armitage, Marguerite	B. A.	Harrison
Baker, Cecil Brown	B. A.	Malvern
Banta, Katherine	B. A.	Springdale
Barton, Alma	B. A.	Jonesboro
Berry, Benjamin Marvin	B. S. A.	Fayetteville
Berry, Marguerite	B. A.	Fayetteville
Bird, Nellie	B. A.	Waldron
Blackman, Ora	B. A.	Fayetteville
Bowen, Edward	B. A.	Ravenden Springs
Boyd, Frances Leona	B. A.	Fayetteville
Bradley, Harold Herbert	E. E.	Fayetteville
Bragg, Peter New	B. A.	Chidester
Brennan, Dorothy Katherine	B. A.	Fayetteville
Bryant, Anna	B. A.	Rector
Buerkle, John George	M. E.	Stuttgart
Carnes, Grover Cloe	B. A.	DeWitt
Carroll, Hugh Anderson Dinsmore	B. A.	Valley Springs
Casey, Walter Burton	B. A.	Boxley
Clark, Madison Dayton	B. A.	Malvern

Name	Course	Home Address
Cook, Eli Thomas	C. E.	Fayetteville
Coventon, John William	B. A.	Oakland
Croom, Sam Gaston	B. A.	Dardanelle
Crumpler, Sam Abner	B. A.	Magnolia
Davenport, Bessie	B. A.	Hartford
Davis, Lucile	B. A.	Harrisburg
Decker, Klvi Kivia Leona	B. A.	Fayetteville
Devanney, Hallie	B. A.	Fayetteville
Dowdle, Robert Garland	C. E.	Morrillton
Downs, Roy Richard	C. E.	Fordyce
Duncan, William Wirt	C. E.	Westville, Okla.
Dunn, Homer W.	E. E.	Fayetteville
Dunn, William Augustine	M. E.	Fort Smith
Earle, Robert David	B. S. A.	Little Rock
Ellis, Elizabeth	B. A.	Fayetteville
Funk, Gladys	B. A.	Rogers
Gerig, Francis Austin	C. E.	Arkadelphia
Gordon, James Howell	E. E.	Washington, D. C.
Goss, Alpha Lloyd	E. E.	Fayetteville
Graham, Jesse James	E. E.	Springdale
Hall, Elizabeth	B. A.	Fayetteville
Hallabaugh, Essie	B. A.	Leslie
Hays, Charles Wentworth	E. E.	Fayetteville
Heagler, Arthur Ellis	C. E.	Mexico, Mo.
Henry, Elbert Augustus	B. A.	Jacksonville
Holcombe, Lillian	B. A.	Fayetteville
Hon, Mabel	B. A.	Fort Smith
Holt, Joseph Berry	B. A.	Harrison
Holt, LaFayette Mitchell	B. A.	Harrison
Huntly, Bruce Wilson	C. E.	Kirkland
Jackson, Allen Ray	B. A.	Paragould
Jordan, Mary	B. A.	Newman, Ill.
Keith, Allen Absalom	B. S. A.	Van Buren
Keller, Fred	B. A.	Jonesboro
Kennedy, Walter Earle	E. E.	Fayetteville
Lake, Edward Clay	B. A.	DeQueen
Lamberton, Horace Clay	E. E.	Little Rock
Laser, Lucile	B. A.	Clarksville
McCulley, Icye May	B. A.	Siloam Springs
McDearmon, George Washington	C. E.	Weldon
McFarlane, Marguerite	B. A.	Fayetteville
McGaughe, Callie	B. A.	Gentry
McGill, Minto	M. E.	Chidester
McGill, Sidney Smith	E. E.	Chidester
McPherson, Ralph Russell	B. S. A.	Stuttgart
Magness, Perry Green	C. E.	Magness
May, Russell Varneille	B. A.	Little Rock
Metcalfe, Roy James	B. A.	Horatio
Mixon, Harvey	B. A.	Atlanta
Morehead, Louise	B. A.	Hot Springs
Moss, Mildred	B. A.	Little Rock
Osborne, Bertha	B. A.	Siloam Springs
Payne, Elbert Earle	C. E.	Forrest City
Payne, Harold B.	C. E.	Fort Smith
Poff, Albert Alonzo	B. A.	Jonesboro
Potter, Grover Cleveland	C. E.	Fayetteville
Potter, H. N.	B. A.	Stuttgart
Price, Oscar Gipson	B. S. A.	Rector
Ratliff, Emmett Marshall	C. E.	Healing Springs
Roys, Marco Benjamin	E. E.	Russellville
Rudolph, Frieda	B. A.	Fayetteville
Rye, Vim Xenophon	C. E.	Van Buren
Scurlock, Edward Holmes	B. A.	Piggott
Sharp, James Edwin	B. S. C.	Prairie Grove
Stallings, David Grady	B. A.	Hartshorne, Okla.
Stout, Samuel Rodman	B. S. A.	Rogers

## SOPHOMORE CLASS

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Name	Course	Home Address
Swilley, George William	C. E.	Eldorado
Thomas, Olin Clancy	C. E.	DeQueen
Thornton, Robert Emiel	M. E.	Hot Springs
Titus, Ira Ralph	C. E.	Mena
Trent, Ruth	B. A.	Fayetteville
Tyson, Harvey Jewell	B. S. A.	Camden
Volentine, Paul	E. E.	Charleston
Wade, Hopkins	B. A.	Eldorado
Waller, Ruth Mary	B. A.	Warren
Watters, Robert Franklin	B. A.	Havana
Weidemeyer, Harry A.	B. S. A.	Jacksonville
Weigart, George Thurston	B. S. A.	Rector
Williams, Julia	B. A.	Fayetteville
Winfrey, John Simon	B. A.	Rudy
Wolf, Wyatt Horton	E. E.	Mountain Home
Wooddy, Lemuel Dale	C. E.	Fayetteville
Wyche, Gladys	B. A.	Montgomery, Ala.

## SOPHOMORE CLASS

Adams, Noah	C. E.	Fayetteville
Autry, John Lee	E. E.	Columbus
Baker, Maybin Steel	B. S. A.	Little Rock
Barry, William Taylor	B. A.	Fayetteville
Barton, Mary Garland	L. I.	Marion
Bates, Marjorie Frances	B. A.	Little Rock
Bell, John Edward	E. E.	Chidester
Bell, Susan	B. A.	Benton
Bethel, Claude	M. E.	Bates
Blackshare, James Osmer	B. A.	Fayetteville
Bland, Alice	L. I.	Carthage
Bonner, Edmund Covington	E. E.	Fayetteville
Bradford, Wylie Ernest	B. A.	Fayetteville
Briant, James Sidney	B. A.	Hope
Browne, Leroy Walton	C. E.	Ward
Cammark, George Salterberer	B. A.	Portland
Carl, Floyd Conkling	M. E.	Siloam Springs
Cates, Allen Wade	B. A.	Boles
Cook, Walter Gresham	B. A.	Texarkana
Croxdale, Earl Thomas	B. A.	Fayetteville
Croxdale, Everett Woods	B. S. A.	Fayetteville
Dabler, Frederick Herman	C. E.	Evansville, Ind.
Daniels, Fannie	B. A.	Piggot
Davidson, Elmer Cruse	E. E.	Shreveport, La.
Davis, Lucy	L. I.	Harrisburg
Derden, Jesse Homer	B. A.	Austin
Duncan, Edgar Everett	B. S. C.	Waldron
Dunn, John Howard	E. E.	Fayetteville
Dyer, Cyrus Leavitt	B. S. A.	Fayetteville
Fletcher, Neill	B. A.	Lonoke
Forrest, Leland Stanford	B. A.	Siloam Springs
Forwood, Eleanor	B. A.	Rogers
Frazier, Elmer Homer	B. A.	Havana
Garrett, Claude Wallace	B. A.	Huntsville
Gibson, James Martin	E. E.	Huttig
Gibson, Ruth	B. A.	Jonesboro
Gilliam, Surrey Edgar	B. A.	Lockesburg
Gladson, Marian	B. A.	Fayetteville
Gregg, Pansy	L. I.	Fayetteville
Graig, James Kibler	B. A.	Van Buren
Hamby, Leonard Christopher	E. E.	Fayetteville
Harding, Rufus Chester	C. E.	Augusta
Harris, Alice	L. I.	Prescott
Harville, Archie Watson	B. A.	Harrison
Hervey, Thomas Edward	E. E.	Hope
Hinds, Helen	B. A.	Fayetteville
Hirsch, Ralph	E. E.	Newport

Name	Course	Home Address
Hooper, Orville Carewe	B. A.	Sugar Grove
Hopper, David Claude	E. E.	Caddo Gap
Hopper, Ira Claude	B. A.	Caddo Gap
Huber, Casper Albert	C. E.	Mena
Hughes, Anna Irene	L. I.	Fayetteville
Hughes, Jewell	B. A.	Fayetteville
Humphries, Francis Aldridge	M. E.	Fayetteville
Hurlock, Leslie	L. I.	Siloam Springs
Irby, Nolen Meaders	B. A.	Blue Mountain
Izard, Letha	L. I.	Mena
Jamison, Claudine	L. I.	Marion
Johnson, Nelle	B. A.	Hackett
Jones, Maurice Fuller	E. E.	Batesville
Jordan, Ettalee	L. I.	Fayetteville
Joyer, John Edward	L. I.	Atkins
Keith, Ava Adriel	B. A.	Siloam Springs
Keith, Marvin Nichols	B. A.	Malvern
Kelley, Charles Quesnell	B. A.	Corning
Kennard, Rolfe Powell	B. A.	Fayetteville
Kilgore, Vesta	L. I.	Garvin, Okla
Kimbrough, Ethel	L. I.	Dutch Millis
Knerr, Bertha	B. A.	Fayetteville
Knoch, Elmo Albert	C. E.	Fayetteville
Kolb, Allie Carl	B. A.	Provo
Lake, John Pinnix	B. A.	DeQueen
Lee, Annie	L. I.	Eldorado
Mackey, Minnie	B. A.	Seymour, Mo.
McCain, Melbourne Galloway	B. A.	Pine Bluff
McCain, William Enoch	B. A.	McCrory
McCullough, Richard	B. A.	Little Rock
McGill, Walter Greenfield	B. A.	Chidester
McKinney, Ruth	B. A.	Corning
Marr, Eugene Clarence	B. A.	Springfield, Mo.
Millwee, Fay Bruce	B. S. A.	Horatio
Moon, Evan Ross	B. A.	DeQueen
Moore, Lyla	B. A.	Fayetteville
Moore, Vaughan Henry	C. E.	Fayetteville
Neely, Hallie	B. A.	Fayetteville
Newton, William Kanon	B. A.	Russellville
Oliver, James William	B. A.	Eureka Springs
Oliver, Jennie	B. A.	Corning
Parsons, Lloyd Chandler	E. E.	Fayetteville
Pettigrew, Helen	B. A.	Charleston
Phillips, Bess	B. A.	Fayetteville
Pratt, Joy Margaret	B. A.	Fayetteville
Price, Marlan	B. A.	Fayetteville
Pyeatt, Elizabeth	L. I.	Cane Hill
Quick, William Cecil	B. S. A.	Elm Springs
Redus, Frank Brown	B. A.	Harrison
Reed, Mary Kate	B. A.	Johnson
Reid, Robert Gresham	B. A.	Hope
Shuffield, Mrs. Jette	L. I.	Fayetteville
Shuffield, Newton Ernest	B. A.	Nashville
Slayman, Charles Henry	C. E.	Hamilton, Iowa
Smith, Calvin Austin	C. E.	DeQueen
Smith, Earl Webster	B. S. A.	Fayetteville
Smith, Euclid Theodore	B. A.	Amity
Smith, William Lentz	B. A.	Fayetteville
Southall, Richard Columbus	B. A.	Marion
Stewart, Reed	C. E.	Three Creeks
Stevenson, Eberle Upshaw	C. E.	Marianna
Stone, Marian	B. A.	Fayetteville
Stuckey, Helen	B. A.	Johnson
Thompson, Joseph I.	L. I.	Leonard
Thompson, Joseph McKee	B. A.	Warren
Thompson, Lilburn E.	C. E.	Valley Springs
Upchurch, Earle Frank	L. I.	Hackett

Name	Course	Home Address
Watson, Damon	B. A.	McAlester, Okla.
Williams, Benjamin Robertson	B. A.	Jacksonport
Willson, James Freed	B. A.	Ola
Wilson, Robert Manton	B. A.	Hope
Wood, James Roscoe	B. A.	Ashdown
Woolfolk, Robert Lee, Jr.	B. A.	Dermott
Yates, Tennie	L. I.	Boonville

## FRESHMAN CLASS

Alcorn, Maurice Lee	B. A.	Imboden
Alexander, Reba	B. A.	Little Rock
Allen, Glenn Luman	C. E.	Warren
Amis, Moss Wilkerson	B. A.	Fort Smith
Arnold, Benjamin	L. I.	Newark
Arnold, Carrie	B. A.	Pine Bluff
Austin, Judson W.	B. S. A.	Fayetteville
Barrow, Marguerite	B. A.	Forrest City
Beall, Madge	B. A.	Fort Smith
Bentley, Fannie	L. I.	Fayetteville
Benton, Sidney Wright	B. S. A.	Fayetteville
Blakemore, Raleigh	B. A.	Prairie Grove
Bostic, John Lenuer	B. S. A.	Fayetteville
Bransford, Wallace Sims	B. A.	Lonoke
Brewster, Gordon	E. E.	Prairie Grove
Brown, Robert Washington	B. A.	Adona
Burney, James Berry	B. A.	Green Forest
Cargile, Louis Clave	B. A.	Bentonville
Carolan, Clem	B. A.	Boonville
Carolan, Lester	C. E.	Boonville
Carroll, John Charles	B. A.	Trull
Castleberry, Edmond Ealey	L. I.	Salem
Childress, Paul Alexander	C. E.	Fayetteville
Clements, Joseph Winters	B. A.	Pine Bluff
Cochran, Sidney Allan	B. A.	Boonville
Coker, Morton Barrow	E. E.	Fayetteville
Cole, Charles Wynne	M. E.	Alma
Constant, Mabel Nellie	L. I.	Van Buren
Cook, Jacob	B. S. A.	Fayetteville
Cordell, Jane Thyra	L. I.	Van Buren
Coventon, Bessie	L. I.	Oakland
Curnutt, Hugh Anderson	B. A.	Harrison
Daly, Florence	B. A.	Montrose, Colo.
Daniels, John Buford	B. S. A.	Dermott
Decker, Klechia	B. A.	Fayetteville
Dubs, Ford Harvey	E. E.	Fayetteville
Eld, Ellen Eva	B. A.	Bentonville
Ellington, Frederick Merton	E. E.	Monrovia, Cal.
Fletcher, Eric	C. E.	Osceola
Forrest, Grace	B. A.	Siloam Springs
Freeman, Edward Hamilton	E. E.	Ashdown
Frost, Eula	L. I.	Fayetteville
Garner, Frank Robert, Jr.	B. A.	Morell
Gerard, Adolphus Simonson	E. E.	Kansas City, Mo.
Gibson, Dean	E. E.	Nashville
Goodwin, Ida	L. I.	Eldorado
Gozza, Henslee Depuy	C. E.	Pine Bluff
Grabill, Florence	L. I.	Fayetteville
Graves, Hester Anna	B. A.	Bentonville
Greaves, Clifton David	B. A.	Hot Springs
Greenfield, Joseph Elliot	C. E.	Batesville
Greig, Agnes	L. I.	Van Buren
Harb, Harper	B. S. A.	Little Rock
Harris, Albert R.	E. E.	Vinita, Okla.
Harris, Hadley Anzelett	B. A.	Fayetteville
Harville, William Emerson	B. A.	Augusta
Hazard, Mark Gordon	B. S. A.	Marathon

Name	Course	Home Address
Henderson, Charles Augustus	B. S. A.	Centerton
Higgs, Morton Thomas	E. E.	Van Buren
Hilton, Esther	B. A.	Fayetteville
Hogue, Alfred Amos	B. S. A.	Hot Springs
Holmes, Odus Garfield	B. A.	Harrison
Horton, Horace Reade	M. E.	Fort Smith
Horton, Ralph	B. A.	Ozark
Horton, William George	M. E.	Fort Smith
Hunt, Ralph Berry	B. A.	Dardanelle
Hurst, Floye	B. A.	Fayetteville
Jackson, Katherine	B. A.	Bentonville
Jelks, Clarence Clay	L. I.	Augusta
Johnson, Byron Everette	C. E.	Waldo
Jones, Iva Burton	B. A.	Mena
Jordan, Pauline	B. A.	Little Rock
Kolb, Eurby Roy	B. A.	Provo
Langford, Sarah	L. I.	Van Buren
Lano, Mildred	B. A.	Fayetteville
Lattener, Dorothy	L. I.	Cartersville
Lee, Lucas Snyder	C. E.	Fayetteville
Leonard, Russell	B. S. A.	Mountain Home
Lida, Katherine	B. A.	Camden
Love, Arthur James	B. A.	Waldo
Marshall, Olive	B. A.	Little Rock
Martin, Hiram Lee	E. E.	Warren
Massey, Oliver Talmadge	B. A.	Black Rock
Masters, Effie May	L. I.	Durham
Mather, Juliette	B. A.	Fayetteville
McBride, Berta	B. A.	Fayetteville
McBride, John Edgar	B. S. C.	Fort Smith
McCoy, Aileen	B. A.	Fayetteville
McCoy, Nora	B. A.	Fayetteville
McDonald, Louise	B. A.	Fort Smith
Mauck, Bernice	B. A.	Fort Smith
Middlebrook, Edna	B. A.	Hope
Middlebrook, Ida	L. I.	Hope
Myers, James Hamilton	B. A.	Black Rock
Nelson, Edward Houston	B. A.	Cauthron
Nichols, Durward Belman	B. S. A.	Portland
Norwood, Frank Anderson	B. A.	Little Rock
Nunn, Henry	C. E.	Blue Mountain
Oliver, Grace	L. I.	Eureka Springs
Oliver, James Montgomery	B. A.	Corning
Oliver, Laurena	B. A.	Corning
O'Neal, Beatrice	B. A.	Springdale
O'Neal, Lloyd	E. E.	Rogers
Oster, Mabel	B. A.	Rogers
Owen, George Williford	B. A.	Rector
Owen, Marion Elizabeth	L. I.	Helena
Payne, Weston	C. E.	Forrest City
Penix, Frederick Lloyd	B. A.	Bono
Phinney, James Allen	E. E.	Fort Worth, Texas
Pope, Walter Curtis	B. A.	Monticello
Rawlings, Audrey	L. I.	Sulphur Rock
Rawlings, Roy	C. E.	Sulphur Rock
Rice, Philip	E. E.	Bentonville
Riddling, Little	B. S. A.	Mena
Rogers, Clementine	L. I.	Prairie Grove
Rogers, Eunice	B. A.	Fayetteville
Rogers, Thomas	B. A.	Prairie Grove
Rosencrantz, Franklin Carl	B. S. A.	Fayetteville
Rudd, James Thomas	B. S. C.	Van Buren
Sadler, Ralph Archibald	B. A.	Boonville
Scarlett, Winton Cyriel	C. E.	Russellville
Scott, Ellen	B. A.	Rosston
Shafer, Theodore Floyd	B. A.	Prairie Grove
Shell Bernice	L. I.	Helena

## SPECIAL STUDENTS

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Name	Course	Home Address
Shugart, Warner	C. E.	Fordyce
Skelton, Maxwell Lee	E. E.	Fayetteville
Smead, Hamilton Powell	B. A.	Camden
Smith, Beula	L. I.	Fayetteville
Smith, Finley Baxter	E. E.	DeQueen
Smith, Harold Arthur	B. A.	Searcy
Smith, Norton Lauthrop	C. E.	Helena
Smith, Sanford Thomas	B. A.	Sheridan
Snyder, Bryan, Jr.	E. E.	Rogers
Souter, John Ellis	B. A.	Magnolia
Stewart, Charles Jacob	M. E.	Stuttgart
Stewart, David W.	B. A.	Texarkana
Stewart, Eva	B. A.	Little Rock
Stone, Hilda	L. I.	Waldron
Tanner, Joseph Lusk	B. S. C.	Blytheville
Taylor, Irene	B. A.	Paragould
Taylor, John Wesley	B. S. A.	Shelbyville
Taylor, Verna	B. A.	Siloam Springs
Thomas, Alvin Nelson	E. E.	Amity
Tipton, Goodwin	B. A.	Forrest City
Toney, John Speers	B. A.	Pine Bluff
Treece, Pearl	B. A.	Marshall
Turner, William H.	C. E.	Jonesboro
Tucker, Edith	B. A.	Cameron, Okla.
Upchurch, Earl Frank	L. I.	Hackett
Upchurch, Josie May	L. I.	Hackett
Vandusen, Chester Warren	E. E.	Stuttgart
Vaughan, John Edward	E. E.	Little Rock
Walkup, Robert Montgomery	B. A.	Havana
Walls, Louise	B. A.	Holly Grove
Walter, Clyde Talbot	B. A.	Broken Bow, Neb.
Wasson, Bertice	B. A.	Westville, Okla.
Watson, Louis Elizabeth	B. A.	Amity
Weidemeyer, Jesse	B. S. A.	Jacksonville
Weisiger, Joseph, Jr.	E. E.	Hope
Wells, George Clovus	E. E.	Purcell, Okla.
White, Edward Sonora	B. A.	Stillwell, Okla.
White, Tell Thompson	C. E.	Pocahontas
Whitmore, Francis	L. I.	Fayetteville
Wiggins, Samuel B.	B. A.	Fayetteville
Williams, William Dudley	L. I.	Franklin
Willis, Richard Bocock	C. E.	Fayetteville
Winn, James Alexander	B. A.	Russellville
Wommack, Walter	B. S. A.	De Queen
Wood, Annie May	B. A.	Marshall
Wood, Myrtle Anna	B. A.	Marshall
Woody, Sue	B. A.	Fayetteville
Woodfin, Eugene Locke	B. A.	Brinkley
Wooten, William Richard	C. E.	Russellville

## SPECIAL STUDENTS

Arnoff, Joseph	B. A.	McCrory
Austin, Louise	B. A.	Fayetteville
Bedford, Jeanette J.	B. A.	Fayetteville
Bowen, Howard Russell	E. E.	Bentonville
Bryan, Harry Wilcox	B. S. A.	Van Buren
Bush, Dexter Sloman	B. A.	Prescott
Calkin, Margaret Alice	B. A.	Burnt Prairie, Ill.
Cloud, John Van	M. E.	Helena
Cobb, Grover Cleveland	B. A.	Ashdown
Cory, Eleanor	B. A.	Little Rock
Danner, John	M. E.	Goshen
Dixon, John Lemuel	B. S. A.	Mammoth Springs
Donoghue, William Kingston	B. S. A.	Fort Smith
Dortch, Willis Reaves	B. S. A.	Kerrs
Eschenberg, Milton Herman	B. S. A.	Fayetteville

## UNIVERSITY OF ARKANSAS

Name	Course	Home Address
Forol, Charles	M. E.	Fayetteville
Funk, Grace Adeline	B. A.	Rogers
Geren, Jerry M.	B. S. A.	Fort Smith
Goff, James O.	B. A.	Grand Glaise
Gregg, Russell Cravens	B. A.	Fayetteville
Hale, John Joseph	B. S. A.	Bellefonte
Hall, Willis Legette	B. S. A.	Waldron
Harb, Burt William	B. S. A.	Little Rock
Hedrick, Della	B. A.	Fayetteville
Hedrick, Gideon Evert	B. A.	Fayetteville
Henry, Lee Roy	B. S. A.	Lake Charles, La.
Hicks, Edward Ralph	B. A.	Pocahontas
Hinton, Leonard Ester	B. A.	Stamps
Hudson, Clarence Sherman	B. A.	Alix
Jeffords, Mary	B. A.	Little Rock
Kuntz, Jeanette	B. A.	Fayetteville
Lester, Martin O.	B. A.	Lewisville
McConnell, Willard Wilkinson	B. A.	Charleston
Moody, Julius Clark	M. E.	Bald Knob
Norcott, Arnett	B. A.	Little Rock
Norris, Helen	B. A.	Eldorado
Norwood, Ray	M. E.	Hope
Oliver, Paul L.	B. S. A.	Corning
Ott, Russell	B. A.	Emporia, Kan.
Parks, Louise	B. A.	Fayetteville
Patterson, Ray Elmer	M. E.	Walnut Ridge
Philip, Roderick	B. S. A.	Hayes, Kan.
Pulver, Edith	B. A.	Fayetteville
Reed, James Franklin	B. S. A.	Springdale
Reid, Janet	B. A.	Siloam Springs
Roberts, Suzanne	B. A.	Rogers
Rossner, Earl	B. S. A.	Little Rock
Rye, J. Grady	B. S. A.	Van Buren
Sample, Leslie Allen	M. E.	Grand Cane, La.
Sanford, Robin	B. A.	Searcy
Sedwick, Herbert Payne	E. E.	Fayetteville
Sharp, William Wilson	B. S. A.	Springdale
Shultz, Louise	B. A.	Fayetteville
Sossaman, Alice	B. A.	Fayetteville
Soule, Gertrude	B. A.	Fayetteville
Stough, Dowling B.	B. A.	Vinita, Okla.
Tucker, Oren Daniel, Jr.	B. A.	Little Rock
Vineyard, George Hodge	B. A.	Helena
Watson, Era	B. A.	Amity
Wilks, James Caswell	B. A.	Edill
Williams, Ivan Bunger	E. E.	Fayetteville
Wilson, Donald Deane	B. A.	Fayetteville
Wilson, Marguerite	B. A.	Fayetteville
Winfrey, Oscar Miles	B. A.	McCrory
Wommack, Harry Elexus	B. A.	Hugo, Okla.

## STUDENTS IN THE DEPARTMENT OF FINE ARTS

<i>Name</i>	<i>Home Address</i>
Audrain, Mayme	Fairfield, Okla.
Buerkle, Minnie	Stuttgart
Blair, Florence	Fayetteville
Black, Ethel	Conway
Cazort, Florence	Lamar
Coffey, Jewell	Fayetteville
Cole, Edith	Fayetteville
Conway, Christine	Paris, Texas
Cory, Lucy	Little Rock
Davis, Brickelle	El Paso, Texas
Ferrin, Viva	Decatur
Green, Una	Pea Ridge
Heerwagen, Ruth	Fayetteville
Hight, Alice	Fayetteville
Hopkins, Emma	Mena
Hughes, Verda	Fayetteville
Johnson, Floy	Little Rock
Killian, Vida	Hamburg
King, Lillian	Lockesburg
Lambright, Geraldine	DeQueen
Landrum, Eunice	Fayetteville
McAdams, Alberta	Fayetteville
Martin, Alma	Fayetteville
Mastin, Eleanor	Fayetteville
Morton, Winifred	Fayetteville
Myers, Jessie	Harrison
Oates, Eunice	Fayetteville
Porter, Florence	Little Rock
Price, Evadna	Fayetteville
Saunders, Blanche	Fayetteville
Scarborough, Lalla	Piggott
Shirry, Fay	Foreman
Simco, Alice	Fayetteville
Skaggs, Cuba	Fayetteville
Smith, Hattie	Summers
Southworth, Quinland	Fayetteville
Steel, Allene	Fayetteville
Steel, Irene	Fayetteville
Stewart, Jessie	St. Paul
Sutton, Margaret	Fayetteville
Trimble, Susie	Harrison
Vann, Floy	Fairfield, Okla.
Wade, Jessie	Fayetteville
Webster, Ima	Siloam Springs
Walters, Stella	Fayetteville
Wilson, Adalissa	Russellville
Wilson, Hazel	Ola
Williams, Josephine	Fayetteville
Wrinkle, Flora May	Stoutland, Mo.

## SUMMARY OF ATTENDANCE

*College of Arts and Sciences*

Graduate Students.....	3
Seniors .....	59
Juniors .....	60
Sophomores .....	89
Freshmen .....	115
Special Students.....	39
Students enrolled in the Department of Fine Arts.....	49
	— 414

*College of Engineering*

Seniors .....	25
Juniors .....	34
Sophomores .....	27
Freshmen .....	43
Special Students .....	10
	— 139

*College of Agriculture*

Seniors .....	10
Juniors .....	11
Sophomores .....	5
Freshmen .....	16
Special Students .....	16
	— 58
Total.....	611

# DEGREES, DIPLOMAS AND CERTIFICATES

1912

## HONORARY DEGREE OF DOCTOR OF LAWS (LL. D)

Albert Homer Purdue

## DEGREE OF MASTER OF ARTS (M. A.)

Bruce Wesley Dickson	Ellen King
Hugh Dinsmore Miser	

## DEGREE OF MASTER OF SCIENCE (M. S.)

Horace Bull VanValkenburg

## DEGREE OF BACHELOR OF ARTS (B. A.)

Ray Moore Austin	Lena Blackshire
Jennie Blackshire	Alfred Boyd Cybert
Reuben D. Caudle	Oscar Martin Corbell
Alice Collins	William Cleveland Davis
Heber Flinn	David Allen Gates, Jr.
Eutha Harris	Claudius V. Holloway
Ernest Thompson Hays	Galloway Caldwell Harrison
Millard Zachary Hall	Emma Hilt
Claude Morrison Hirst	Leah Jones
Joseph William Joiner	Thomas Alonzo Jackson
Flossie Jordan	James Wyse Kuykendall
Robert Carr Knox	Irma Marshall
Lilbourn Hays Meriwether	Walter Carrigan Miles
Ruth McCartney	Jessie McCoy
Bess McCoy	Laurence Spurgeon McLeod
Harvey Watson McHenry	Clarence McClelland
Aubert Martin	William Roy Penix
Lucile Pettigrew	Puth Pettigrew
May Pitman	Henry Nelson Pulliam
Lucy Pulliam	Ruth Pye
Ethel Rennick	James Robertson
Agnes Robinson	David B. Sanderlin
Lucile Smith	George Quinland Southworth
Nollie Olin Taff	Alice Wade
Guy Walker Wolf	John Sam Wood
Olive Wood	William T. Clinton Young

## BACHELOR OF CIVIL ENGINEERING (B. C. E.)

Ollie Carter	Daniel Jackson Evans
Earl T. Harlan	Arthur King
Shelly H. Lee	Elias Harvey O'Neal
Lee Roy Plemmons	Eugene Philpot
John Robert Stallings	Claude Allen Webb

## BACHELOR OF ELECTRICAL ENGINEERING (B. E. E.)

Jere Harrison	Leonard Ross Hulse
Roland Adolphi Lea	Frank Moody
Claude Willis Paul	Lee Hugh Rogers
Nina Ichitaro Takata	

## BACHELOR OF MECHANICAL ENGINEERING (B. M. E.)

John Dickinson

## BACHELOR OF MINING ENGINEERING (B. M. I. E.)

Frank Bryan

## CERTIFICATES AND DIPLOMAS

CERTIFICATE OF LICENTIATE OF INSTRUCTION

Louis I. Anderson	Ray Moore Austin
Eileen Briscoe	John Edward Casey
Lucy May Daniels	William L. Deal
Madeline Deane	Katie Dotson
Kathleen Garvin	Thomas Andrew Green
Essie Hallabaugh	Edgar Egbert Hulen
Floss Jordan	Verna Loomis
Clara Lilly	Robert Oscar McCarty
Olive McMurtry	Jim P. Mathews
Katie Patrick	Stella Pearson
Lucy Pulliam	Lucile Pettigrew
Ruth Pettigrew	Agnes Robinson
Ethel Rennick	Maggie Scott
Edward Holmes Scurlock	Lucile Smith
Ruth Smith	Irene Tilley
Guy Williams	Charles Wiggins
Olive Wood	Kathleen Wright
Frances Porter	Ruth Pye
Lulu McClanahan	

## CERTIFICATE IN ELECTRICAL ENGINEERING

Albert James Collins      Charles Russell Spangler

CERTIFICATE IN MECHANIC ARTS

Raymond Virgil Pickering

CERTIFICATE IN MUSIC

CERTIFICATE IN VOCAL MUSIC

TEACHER'S CERTIFICATE IN PIANO MUSIC

Jean Giddings

## DIPLOMA IN PIANO MUSIC

*Announcement:* The List of Collegiate Alumni of the University of Arkansas, printed as a part of former catalogues of the University, will be separately printed as a supplement to the present catalogue.

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